AUGUST, 1943

Industrial FINISHING

Published Monthly in the Interest of Modern Production Finishing

THE NEW MODEL "XLD" RECIPROCATING Easy ELECTRIC SANDER

WITH DETACHABLE BOTTOM PLATE

The detachable bottom plate is a unique feature of the Model "XLD" providing an INSTANT SNAP-ACTION method for attaching the correct type sanding pad to fit the job. Pads are available in a wide range of sizes, shapes, and degree of flexibility.

DON'T let slow, expensive hand finishing and the scarcity of skilled labor tie up your War Production. With the EASY Sander, inexperienced help, men or women, do the work of two or three hand operators, and turn out better work on even the closest tolerance jobs.

Many Applications On War Production Jobs

THERE'S an application for the EASY Sanders on most War Production jobs . . . sanding, rubbing, polishing . . . curved or flat surfaces . . . wet or dry . . . in the manufacture and maintenance of airplanes, gliders, propellers (wood or metal) . . . firearms, searchlights, castings, patterns, dies, transparent plastics and hundreds of other applications . . . with savings of 50% to 75% in time, labor, and abrasives.

PROVE THE "EASY"— WRITE FOR LITERATURE

DETROIT SURFACING MACHINE COMPANY

7434 West Davison Detroit 4, Michigan

Paladin

A COATING OF PLASTIC THAT STICKS TO CADMIUM • COPPER • ALUMINUM • ZINC

Paladin primed half of Cadmium panel resists sharp bend —conventional primer permits failure of entire finish.

BASED on an entirely new principle in the manufacture of organic finishes, Paladin utilizes some of the newer plastics for the first time in surface coatings.

Because of its unique adhesion, coupled with toughness and permanent flexibility, Paladin answers a long felt need for a satisfactory primer for metals where conventional paints, lacquers, or enamels are of little value. Paladin provides excellent resistance to aromatic fuels, salt spray and humidity, and has good exterior durability. Thus, these remarkable protective properties enable Paladin to also serve as a one-coat finish in itself.

This new material may be sprayed, dipped, tumbled, or roller coated, and either air dries in regular lacquer time or permits force drying or baking at temperatures up to 350° F.

Write for complete information.

ROXALIN *Flexible* FINISHES
INCORPORATED
ELIZABETH, F, NEW JERSEY
Box 183

"WHERE THE FINISH COUNTS USE . . . ROXALIN"

Enthone

ENAMEL STRIPPERS*

WORK CLEAN AND FAST

The above panel shows how fast Enthone Enamel Strippers go to work.

Panel *"A"—Original enamel of urea-formaldehyde type*
Panel *"B"—After one minute in stripper*
Panel *"C"—After two minutes in stripper*

Notice that the enamel lifts away from the surface, leaving it clean and unattacked.

Enthone Enamel Strippers do not attack any base metal or anodized coatings.

Consult Enthone for stripping synthetics, japans, lacquers.

THE ENTHONE CO
NEW HAVEN
CONNECTICUT

REPRESENTATIVES IN PRINCIPAL CITIES

*Protected by U. S. Patent No. 2242106

Always up-to-date

ACCURATE

COMPLETE

Military requirements for finishes are frequently changing, therefore Zapon is in continuous contact with Government specifying agencies so that its information on specifications is always up-to-date. In turn our laboratories and the users of these finishes are kept constantly informed so they can keep abreast of developments.

Here's another example of the synergistic approach we have been talking about. It proves highly profitable all around and helps solve problems speedily. In this case synergism helps to recognize clearly the job to be done, the materials needed for the finish, the best procedure for fast production, how to get the best results at reasonable cost.

WHAT IS SYNERGISM?
In Synergism, forces—minds—work together to produce results greater than both working separately might achieve, making 2 + 2 = 5.

You are invited to write for a copy of our folder on U. S. Government Specifications. Why not also let us know when we can get together for a synergistic session?

ZAPON

ZAPON DIVISION · ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn. *Western Sales: North Chicago, Ill.*

INDUSTRIAL FINISHES

NINETEENTH YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor E. A. DOSCH, Assoc. Editor

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Contents of This Issue

Letters from Readers ---- 4
Painting Streamlined Gasoline Drop Tanks ---- 16
Black Oxide Finish Has Merits for Use on Steel Gages ---- 22
Give More Information When Ordering Materials ---- 26
Roll-Coating Plywood Parts for Lockers ---- 34
How We Tooled Up to Paint Ammunition Boxes ---- 40
More Real Safety in Your Finishing Room ---- 46
Materials, Supplies, Equipment ---- 62
Questions and Answers ---- 78
Booklets, Catalogs, Circulars ---- 84
Editorial ---- 88
"Classified Advertising" Section ---- 99
Advertisers' Index ---- 100

Peters-Dalton, Inc., is Name of Industrial Equipment Corp. ---- 19
New Wrinkle Lab. Is Moved ---- 33
Alkyd Resin Paints ---- 38
Glyco Products Moves ---- 54
Special Glue Size Saves Lacquer ---- 59
Protectively Dressed ---- 60
Sherwin-Williams to Have Plants in Mexico and Brazil ---- 60
Interchemical Moves to Empire State Building ---- 76

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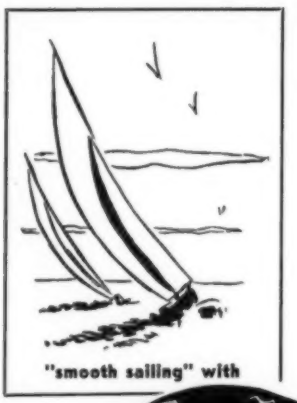

"smooth sailing" with

SEA-LAC

REG. U.S. PAT. OFF.

FINISHES

If you are having difficulty obtaining satisfactory results with finishes being used, you are invited to try SEA-LAC FINISHES — lacquers, primers, synthetics, cements, dopes and thinners—all formulated and tested for current war production requirements. Drop us a line for further information.

Substitute Finishes!

With SEA-LAC it's easy to change steel to brass, brown plastics to white, or put a porcelain-like finish on pressed paper. Get acquainted with the full range of SEA-LAC finishes. Hundreds of substitute finishes to choose from.

Write Us Today!

Duralac Chemical Corp.

84 Lister Ave. Newark, N. J.

Letters from Readers

Decal Cement

Mr. H. W. Chester: We are interested in your new method of decal application, which you described in the June 1943 issue of INDUSTRIAL FINISHING (pages 56-58). Please let us know who sells this new type of cement.—A. L. Furn. Co.

The company's full-page advertisement appears on page 59 of that same issue.—ED.

Can Help Them

On page 70 of June issue, there is an inquiry for a non-shrinking filler for use in filling walnut wood. On the same page, there is also an inquiry in connection with Hot Lacquer.

Please send us the names and addresses of the companies wanting this information, as we believe that we can be of help to them.—X. Co.

Information supplied.—ED.

Will Refinish Bottle Caps

We notice in your June issue, pages 7 and 8, an inquiry from S. Beverage Co. regarding coating their crown shells. Not knowing who this beverage company is, nor the address, we would like for you to pass along the following information:

If they have not already found a source, or means of coating their bottle crowns, we can give them a sanitary coating baked on at 410° F., which will absolutely protect their crowns. It has taken us quite a bit of effort and expense to find this coating and we will be glad to coat crowns for them (as per samples en-

PLANNING OUR FUTURES

WHEN THE lights go on again and our victorious boys come home, they will want Jobs with a future—NOT RELIEF.

It is up to us to keep our Industries going and to plan now for future operations.

While serving our Government with total productive capacity, we are exerting every effort to develop products which may well lead the post war parade in Protective Coatings and Industrial Finishes.

Our research laboratories have already developed numerous products which may be applicable to your future plans. *You need only write, indicating your interest, to obtain information and service.*

V. J. DOLAN & COMPANY, INC.

Mnfrs. of "Unquestionable Quality" Industrial Finishes

1830 N. LARAMIE AVE. CHICAGO, ILLINOIS

BURDETT
(The Original)

"INFRA-RED PRINCIPLE"

GAS BURNERS

Give you

- **Maximum penetration** with "Infra-Red" Rays.
- **In cooking**—greatly reduced pick-up time.
- **In baking**—perfect internal bake.
- **In drying** — production increase up to 300%. In food processing — better retention of food values and flavors, and little or no shrinkage.
- **In annealing**—local or complete treating with equal success.
- **In short** — increased quantity and quality of production with as high as 40% economy in fuel consumption.

Request NEW "Infra-Red" Catalog.

21 NORTH LOOMIS STREET, CHICAGO

BURDETT MANUFACTURING CO.
Infra Red Gas Burners

United's NEW WRINKLE

Made from Non-Critical Oils

The use of Oiticica and China wood oils in wrinkle finishes has been prohibited due to a critical shortage.

United's Technical Staff has met this challenge by developing a new wrinkle which is formulated from non-critical oils. It has the characteristics of our standard wrinkle regarding appearance, uniformity, application, and baking schedule, etc. It is available in various colors and shades.

A trial order will convince you of its merits.

United Lacquer Mfg. Corp.

General Offices & Factory: LINDEN, N. J.
New England Mfg. Div.: Boston, Mass.
Lacquers — Synthetics and Special Protective Coatings for All Surfaces

I. C. D. FORMULA NINE

NON-INFLAMMABLE « wax free REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER-CLEANING

ORDER TRIAL GALLON AT DRUM PRICE

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings . . costs less to use . . saves time, labor and material.

SPECIALTY COATINGS—I. C. D. Labs. have specialized in the formulation and manufacture of non-inflammable coatings and substitute finishes. If you have a tough coating or finishing problem send in your specifications, finishing schedule and requirements. Immediate action and a prompt reply promised.

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.

closed) for a coat of —— per pound. They are to furnish all transportation and containers which will stand the shipment both ways. We can also straighten the caps for them, coat and corkline them for a total cost of —— a gross, provided they furnish us clean crowns and the lining material. We can also wash these crowns for them for an additional small charge. We will be pleased to give them all the help possible.—Amos Cap Co.

Heat-Indicating Papers

Since writing you on May 7 we have been receiving numerous inquiries from manufacturers such as American Can, General Electric, and an inquiry from the Government at Fort Ord, Calif. We believe there is a large field for heat-indicating paper with wood veneer manufacturers—and with all the veneer being used in airplanes, we are wondering if you would be able to give us the names of some of the people who manufacture or shape veneer for the various manufacturers? — Nashua Gummed & Coated Paper Co.

To Stiffen Rope

Please advise what inexpensive solution could be used for stiffening jute rope (about 1-in. in diameter) without making it rigid.—T. A. Co.

We have suggested a special type of glue size with plasticizer added, as publicized in an article elsewhere in this issue. Has anyone something better to offer?—ED.

Wants Colored Lacquer

Do you have any nitrocellulose lacquer which you can offer us? We are interested in securing a white, beige and black lacquer, which is to finish with a gloss in 10 or 15 minutes without baking. We plan to spray this lacquer on metal caps. If you have any type of lacquer which you can offer us, will you kindly let us hear from you?—(Company in Cincinnati).

Spray Booth Coating

In the article "What We Worked Out to Keep our Conveyor Clean," by H. W. Chester, in your July issue, we notice mention of a paste detergent to be applied to the in-

A NEW AND BETTER . .

UNDERCOAT *for* LACQUER

Swift's EVERTACK Liquid Sealer

Makes Your Lacquer Go Twice as Far!

●

This is a pure animal glue base.

It is LIQUID and does not require heating or mixing. It can be sprayed on or hand brushed.

It makes a soft, resilient film — not hard or brittle.

EVERTACK seals the pores of the wood and fills in the "low places," making a smooth, even, film on which the lacquer is applied.

EVERTACK is insoluble in paint, oil, alcohol and practically all other liquids except water; thus the lacquer cannot penetrate the EVERTACK film.

● Send for a one-gallon trial shipment at the 50-gallon barrel price and see the way EVERTACK stretches your lacquer supply.

SWIFT & COMPANY

Glue Division

CHICAGO, ILLINOIS

HOW TO PRINT

NAMEPLATES, DIALS, GAUGES, MARKINGS, LETTERING, TRADE-MARKS, ETC., ON ANY SURFACE

1 Facilities for complete production — any quantity, 1 to 1,000,000.

2 *Multi-Mark* Screens made up for any design; reproductions may be made directly on article without machines; complete directions furnished.

We're helping companies engaged in all types of war production . . . If you have a marking problem of any nature, ask us for information . . . We've had experience with all surfaces, all finishes, all government requirements.

MULTI-MARK DIVISION

Colonial Process Supply Co.

140 W. 23rd Street, NEW YORK

terior of spray booths and on other surfaces to be kept clean of finishing materials. We would appreciate having the name and address of companies manufacuring such products.—G. N. Co.

We would like to obtain the sources of supply on materials for coating spray booths, so that they may be easily cleaned.—W. A. Co.

See ad in June issue, page 94.—ED.

Roller Coaters

In the May issue of INDUSTRIAL FINISHING, on page 7, we note that you sent some inquirer a list of manufacturers of roller coating machines. We too would appreciate having such a list.—X. Co.

Detearing Equipment

I have heard that during the last year you published an article or two on detearing equipment, as used in connection with spraying. As I am unable to find anything on this in our file of your magazine, could you let me know the dates of publication? Or, if you have extra copies available, might we have one of each? And could you let us know who makes this type of equipment?—E. B. Co.

Detearing equipment removes the "tear drops" that cling to the lower edges of dip-coated articles. An illustrated feature article on this appeared in Dec. 1940 issue of this magazine. —ED.

Contrasting Colors on Machinery Parts

One of your recent issues of INDUSTRIAL FINISHING magazine carried an illustrated article dealing with the use of contrasting colors of paint on machinery parts, thus insuring better vision and speeding production.

In checking our files of your publication, we cannot locate the issue which contained this article. Would it be possible for you to send us a copy of the magazine containing this article? We would appreciate your furnishing us this material, plus any other information which you have on this subject.—G. A. Co.

The article appeared in Feb. 1943 issue, beginning on page 74. Material for this article came from the DuPont Co.'s organization, who have many more interesting photographs to illustrate the idea.—ED.

★

Every Need is a War Need . . . .

Lacquers

Fillers

Stains

Enamels

Paints

Armament, guns, tanks, equipment — this is straight war material all requiring finishing products of various types that must stand the severest tests.

And essential civilian? This also requires finishing products which — because of war needs — must deliver the greatest possible value with the lowest possible use of critical raw materials.

We have non-critical finishing materials which possibly will work in perfectly with your program.

Better drop us a line.

★ ***Use Stille-Young Finishes and "Finish with Confidence"***

THE STILLE-YOUNG CORPORATION

2300 North Ashland Avenue • CHICAGO, ILLINOIS

FAMOUS FINISHES

SMOOTHNESS THAT PUTS HORSEPOWER "BACK IN HARNESS"

ROUGH finishes have a way of acting as horse thieves—they steal horsepower and subtract from a plane's performance. The fact that government specifications have been followed—and inspection tests passed—is no guarantee against roughness.

Thanks to long experience in the industrial field, Pittsburgh technical men have been able to develop camouflage finishes of extraordinary smoothness. They reduce wind resistance to a minimum—help the plane to cash in on all the horsepower the engines can generate.

These super-smooth finishes are a typical Pittsburgh achievement. In every one of our wartime formulations, we endeavor to put *plus*-over-minimum requirements.

Free Advisory Service. Pittsburgh maintains a force of "trouble shooters" whose specialty is solving aircraft finishing problems. If you need help, get in touch with us. One of our technical men will be available for consultation.

PITTSBURGH PLATE GLASS COMPANY — Industrial Paint Division, Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Houston, Tex.; Los Angeles, Calif.; Portland, Ore. — Ditzler Color Division, Detroit, Mich. — The Thresher Varnish Co., Dayton, O.

PITTSBURGH *Industrial* **FINISHES**

PITTSBURGH STANDS FOR QUALITY PAINT AND GLASS

"RINKOLIN"

a new wrinkle finish

made from LINSEED OIL

We Started Something

YES! We did start something! —

RINKOLIN is really going over with a bang! Many users say, "We will never go back to the old type wrinkle."

Write, Phone or Wire!

SINCE 1870

STANDARD VARNISH WORKS

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Staten Island, New York

2600 Federal Street
Chicago, Illinois

LACQUERS
SEALERS

• SHELLAC •

ENAMELS

UNDERCOATS

STAINS GLAZES

NOVELTY FINISHES

•

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

ROLL COATER FOR FLAT SURFACES

A fast, accurate machine, now in successful daily service, coating such materials as plywood panels, cardboard, masonite, duraliniu sheets, etc. Made in a full range of sizes.

Ask for Bulletin 11-A.

THE BLACK BROS. CO., INC.
MENDOTA, ILL.

THE LILLY COMPANY
HIGH POINT, N. C.

th he right finish—~~you'll~~ *we'll* finish right"...

meaning the U.S.!

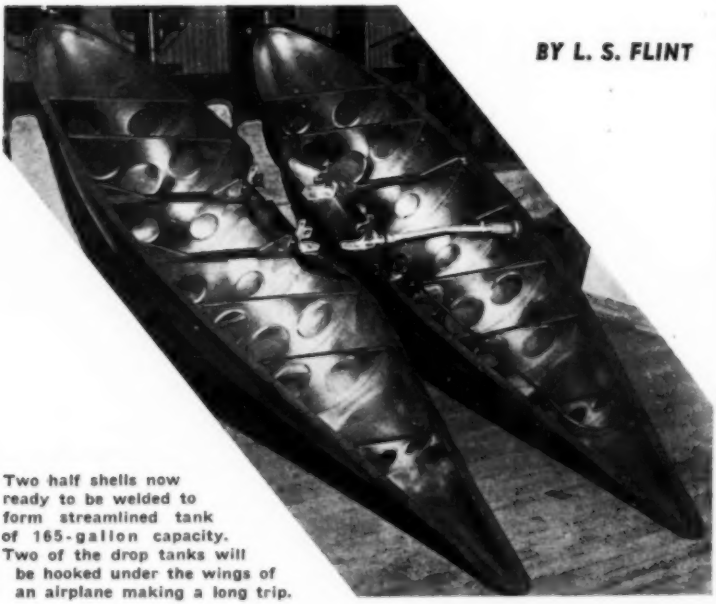
NOW that American production of war goods has reached an all-time high, millions of crates containing everything from small bullets to tanks are beginning to pile up. Material is being produced faster than it can be used or shipped. There's no way of telling how long much of this material will remain in warehouses or on docks—weeks, months or years. Regardless of how long this material remains in storage it must be in perfect usable condition when it is needed. Lilly's organic finishes will provide maximum protection for such valuable war materials. If you are making war products, get in touch with us today—three plants are at your disposal—Indianapolis, High Point, N. C., Gardner, Mass.

•

LILLY VARNISH COMPANY
INDIANAPOLIS, IND.

Painting Streamlined

BY L. S. FLINT



Two half shells now ready to be welded to form streamlined tank of 165-gallon capacity. Two of the drop tanks will be hooked under the wings of an airplane making a long trip.

DROP TANKS are really extra gasoline supply tanks which are hung to a fighter or bomber airplane making a long trip. When the gasoline they hold is consumed, they can be dropped from the plane to lighten its load and to remove what little wind resistance may be caused by carrying these outside tanks. It is these drop tanks that are now making it possible for Lockheed Lightning P-38's, Vega Ventura bombers and other American aircraft to travel farther from their bases to carry the air-war far into enemy countries and destroy their essential war activities.

The streamlined laminar-flow drop tanks, manufactured at one of the branch plants of Lockheed Aircraft Corp. near Los Angeles, Calif., are 10-ft. long and 27-in. in diameter across the middle. The tanks are made of 1010 body steel .024-in. thick.

Each tank weighs 90-lbs. when empty, but this weight is increased to 1000-lbs. when the tank is filled with 165 gallons of gasoline. Two

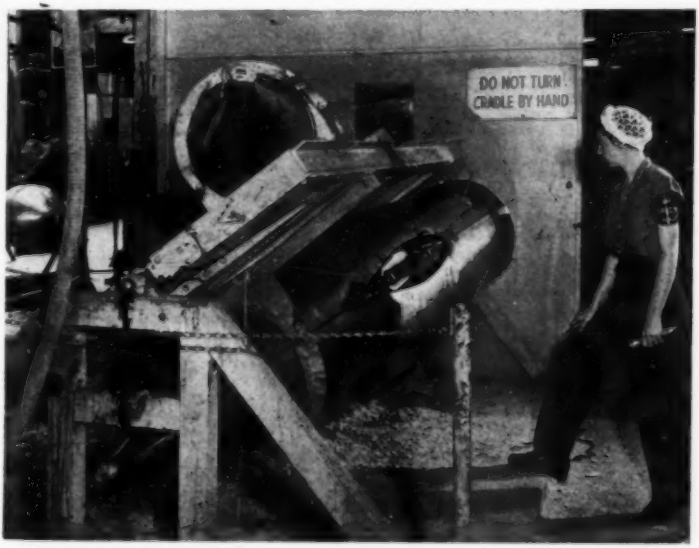
Gasoline Drop Tanks

of these tanks, when clamped with releasable brackets beneath the wings, will approximately double the normal range of a Lockheed Lightning airplane. The aerodynamics problems have been so skillfully overcome that two tanks, when full, reduce the speed of this fast plane only 4% at top speed.

The remarkable production rate of one tank every 4½ minutes, including painting time, has been achieved by a line production system under which the pre-fabricated tank parts are carried by conveyor through a fast-moving assembly line. Several ingenious methods have been developed for quicker welding of the various parts of the tank.

The production layout includes an overhead conveyor, from which special cradles are suspended. Each cradle holds one tank, and the complete assembly conveyor holds 36 cradles. Welding and assembly equipment are located at various stations along the conveyor line, in the sequence in which operations are performed. The tanks are built in half shells and the two halves are welded together.

When the two halves of a tank have been welded together and the



The slushing station where tanks containing a quantity of zinc chromate primer (30 gallons each) are clamped to a rotating frame, two at a time, and rotated to slosh the primer around to coat all parts of the tank interiors.

A peek at tanks passing through the cleaning compartment where they are drenched with cleaning solution, after which they move through a cold-water rinse and then through a drying oven.

Overhead conveyors move the tanks to and from areas where they are interiorally painted, and then tested for possible leaks, cleaned on the outside, spray painted and labeled with decals. Special equipment had to be developed to handle this work rapidly and economically.

★ ★ ★

weld joints have been cleaned and smoothed, each assembled tank is given a pressure test in order to find out if there is any place along the welded joint that leaks. First, the tank is filled with air under high pressure; then it is given an external soap bath as a test for leaks.

Painting the Interiors With Zinc Chromate Primer

When leaks—if any are discovered—have been repaired, the assembled tank moves forward to a unique slushing station for internal application of a special non-inflammable zinc chromate primer. Here a flat frame is mounted on a central horizontal shaft and on each flat side of this frame a drop tank is clamped—not parallel with the shaft but somewhat on a bias. A quantity of zinc chromate primer is poured into each tank, the opening is closed and the frame is rotated to slosh the primer from end to end of each tank and all around its interior.

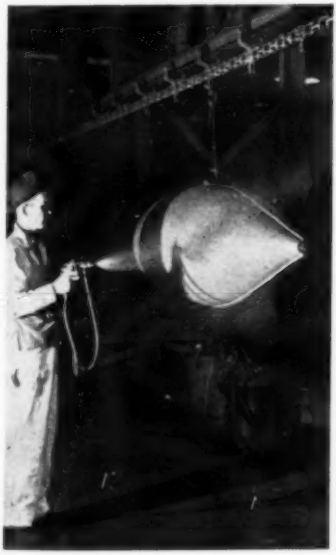
The quantity of primer poured into each tank, for slush-coating the interior (which includes many perforated partitions) is 30 gallons. Naturally, this is more than what is needed to coat all interior surfaces. After the slush-coating operation the surplus is drained off for reuse.

From the slushing table tanks are loaded onto drying dollies. Then a stream of hot air, applied through a hose, accomplishes the necessary drying of the interior primer coat in record time.

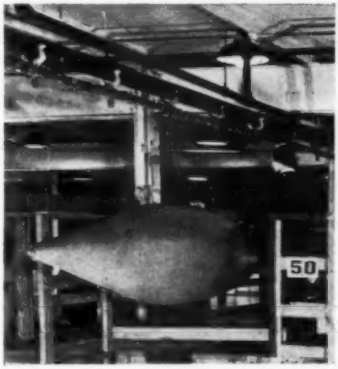
After each tank is given its final pressure test, the permanent tail plug is screwed into place and the fully assembled unit is placed on the process and finishing conveyor. This conveyor carries it first through a bath of hot cleaning compound, thence through a cold

water rinse, followed by passage through a drying oven. Without ever leaving the conveyor, the tanks follow through to the paint spray booths where each tank is given two primer coats and a final camouflage coat.

This same conveyor carries the painted tanks to the shipping building. Each tank passes over a platform where a girl puts on decals which show the manufacturer's name, the tank capacity, etc. Anti-sabotage seals are placed over all openings. The conveyor line moves the tanks outside where a protective coating of Paralketone is applied by spray gun. Tanks are then returned to the shipping building for crating. Crated tanks are loaded for shipment to a seaport where they are placed aboard a ship bound for the fighting front.



One of the paint-spraying stations.



The balcony where decals are applied.

Once fastened in place beneath the wing of a P-38, a Vega Ventura, a Vega PV-1 for the Navy, or other American plane, a pair of these extra tanks, which can be dropped at the will of the pilot, help these fast, hard-hitting aircraft to reach their distant destinations and so carry the war into the home grounds of the Allied Nations' enemies.

Peters-Dalton, Inc. Is Name of Industrial Equipment Corp.

Peters-Dalton, Inc., is the name now taken by the 14-year-old Detroit, Mich., corporation originally known as Industrial Sheet Metal Works and later changed to Industrial Equipment Corp. Quoting from the company's letter:

"Our field of operations has expanded and now covers many other states where we have encountered other well established firms bearing identical or similar names.

"These complexities, further intensified by the increasing number of firm names embodying the word 'Industrial,' prompted us to relieve the situation and adopt a name that would preclude a repetition of our present embarrassment.

"So we have taken the names of our founders—O. A. Peters and A. J. Dalton—and combined them to form our new firm name."

MORE AND BETTER FINISHING IN Half the Space

A new finishing department in the plant of E. J. McAleer & Company, Philadelphia, manufacturer of metal cabinets, stampings and metal fabricated products, occupies half the floor space of the old department and produces more. ★ This modern department, designed and installed by Gifford-Wood Co. of Hudson, N. Y., includes two Binks Dynaprecipitor Water Wash Spray booths, Binks spray painting guns and accessories. Since the installation there have been noticeable savings in paint costs. Insurance rates have been lowered. Working conditions have been improved. The number of sprayers has been cut in half. Rejects have been reduced by thirty per cent. ★ This is an example of the economies and improvements to be expected from correctly engineered and equipped finishing departments. Binks engineers will be glad to survey the finishing department of any war industry and to suggest ways in which production may be increased or costs lowered. No obligation.

BINKS

MANUFACTURING COMPANY

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NEW YORK - DETROIT - SAN FRANCISCO - PHILADELPHIA - PITTSBURGH - CLEVELAND

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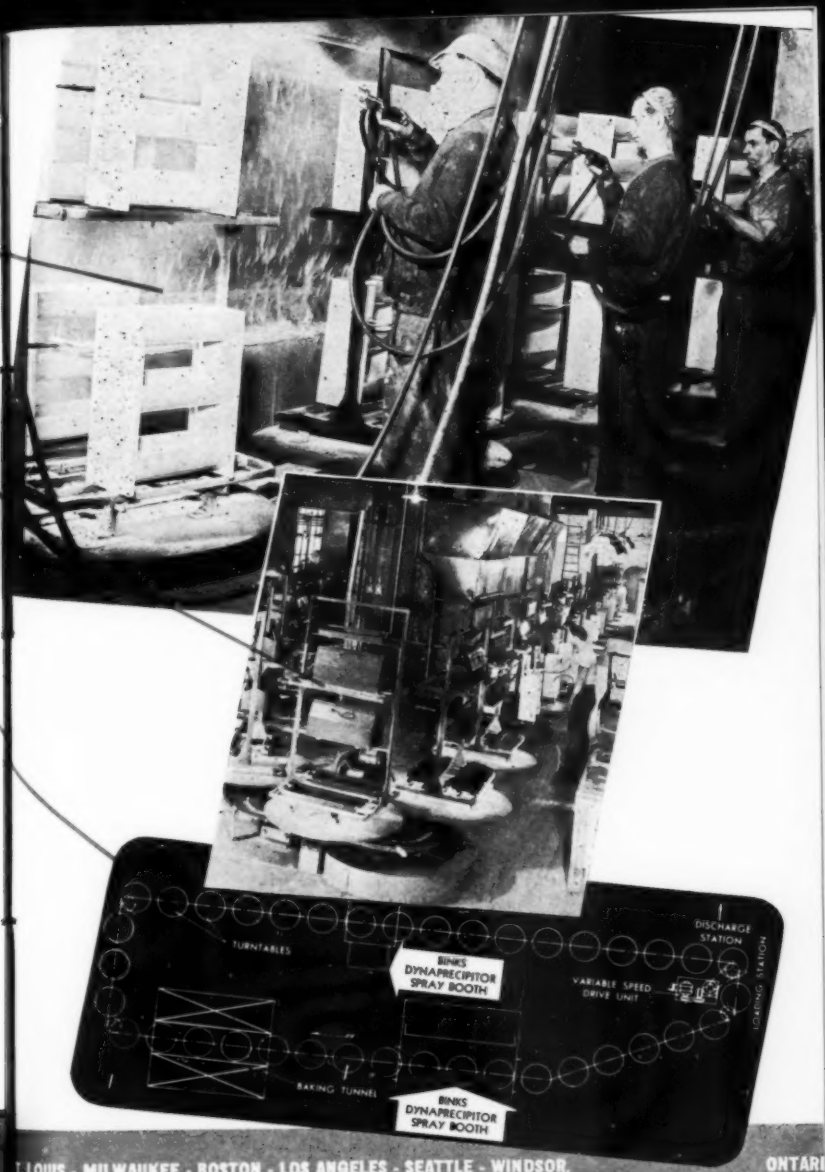

T. LOUIS - MILWAUKEE - BOSTON - LOS ANGELES - SEATTLE - WINDSOR, ONTARI

r complete information about Binks Spray Painting Systems. No obligatio

Black Oxide Finish

HAS MERITS FOR USE ON STEEL GAGES

BY A. F. BROOKS

THE COST of inspecting gages made of tool steel and cold-rolled steel has been cut in half, and the life of these gages has been materially prolonged by treating them with chemical dip finishes which are generally known as black oxide finishes. The gages are given a chemical surface treatment that colors the metal black to a uniform depth, but this black finish doesn't change the dimensions of the gages.

The gages under consideration are chiefly those of the "go" and "no go" type. They are used for inspection of fabricated parts and must be maintained to a high degree of accuracy for frequent checking. Introduction of the black finish for this work, which makes visual inspection practicable, was carried out at the invitation of the technical head of the gage laboratory of one of the district ordnance offices—and with his cooperation. Further tests have indicated the value of the finish from a practical standpoint.

Black Oxide Treatment; Depth of Penetration

In order to determine the maximum penetration of a typical black oxide finish, and the time required in the heated bath to obtain it, two pieces of cold-rolled steel and two of tool steel were prepared by squaring and polishing. One of each was placed in the chemical bath at 300° F. and left for 30 minutes. One of each was also given 30 minutes in the bath and then re-immersed for another 30 minutes. All received a final bath in another dip (a mineral-spirit plus oil or wax, at 180° F.) as further protection against corrosion.

The depth of penetration was then measured by the Bridgeport Testing Laboratory. The laboratory reported a uniform depth on all four specimens of .000098-in. Tests made at two of the ordnance gage laboratories gave substantially the same results, making it

reasonable to assume that the penetration extended to a depth of about .0001-in.

These results are interesting. They show that tool steel and cold-rolled steel may receive maximum penetration in the same length of time, and that one bath of hot chemical treatment is sufficient.

Merits of This Finish on Precision Gages

When gages finished in this manner are put into use, a bright spot will appear after a considerable amount of hard service. This is visual indication that about .0001-in. has worn away from the metal surface. If the gage is used at two points it may remain in service for a wear of .0002-in.; if at only one point, it may be used until the wear shows .0001-in. When the penetrating black coating has been worn through, the gage can be given another treatment to produce another black oxide penetration of .0001-in., and so on until its allowable tolerance has been reached.

This method of finishing is particularly satisfactory for thread and plug gages. The experience at the Philadelphia Gage Laboratory has shown this system to be of great service.

An interesting comparison was made at one of the laboratories in which two 1-in. thread gages were used, one being of plain steel and the other treated with black oxide finish. A first test consisted of 7000 gaging operations on each, after which careful measurements were made to determine the extent of wear on the gages. This was followed by further gaging until it had been repeated 20,000 times, when the wear was again measured. It was found that the wear was the same on both the unfinished and finished test gages; but this was the only point of similarity.

The black finished gage showed no signs of stain or corrosion from handling, whereas the unfinished gage did show stains. Small burrs and nicks on the threads of the blacked gage were plainly evident, but on the untreated gage these could not be seen except with the aid of a magnifying glass. This shows one of the merits of the black surface—in addition to the basic consideration of showing wear in general—a definite indication of the accuracy of the gage.

Several other merits, resulting from the black finish, are well worth considering. Included among these is the fact that any tampering with the gage will show at once. Another merit is the fact that the finished surface makes the gage smoother fitting and consequently less binding and less likely to damage the softer metals on which it is used.

Adds No Thickness to Metal; Low in Cost; Rustproof

After the chemical black oxide process has once been set up, the cost of treatment is practically negligible, and the savings resulting from using it will soon cancel the first outlay. In addition to this, the treatment does not affect the surface in any way except for making it black and rustproof. That is, *it does not cause any change in dimensions, nor does it alter the hardness or softness of the metal.* Finally, it is possible that when the bath is once available it will be used for the black oxide finishing of other steel parts and tools, as it is approved by the Government for such finishes, as well as by many outstanding concerns in this country and abroad.

Announ

NON-CRITICAL FINISHES W

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- POLISHES OR DULL RUBS
- CLEAR—TRANSPARENT
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Give

The Editor
Industrial Finishing Magazine
1142 N. Meridian St.
Indianapolis 4, Indiana

Dear Sir:

You may find this article about "How to Order Materials" of interest. In my experience as Technical Director for the Zapon Division, Atlas Powder Co., at North Chicago, Ill., I have observed that much of the trouble encountered by our customers, when testing paint samples, could have been avoided had we known all of the facts concerning the job before starting work on a formulation project.

The general attitude seems to be that the paint chemist should be able to visualize the exact details of each job by some occult power. In this article I have tried to outline the reasons why the information requested is necessary for the customer to get the best material for his own product.

Yours truly,

William L. Hensley

William L. Hensley

A corner of our laboratory where technicians are busy at work on new materials.

More Information When Ordering Materials

BY WILLIAM L. HENSLEY

So many important men, when they order coating materials, do not appreciate the need of giving full information about their production coating jobs; also, service requirements or the technical tests to be met, factory conditions and other elements which may affect the performance of the material. As a result, what they buy may not be suitable for the job.

IF YOU have never been disappointed with a sample of finishing material you are indeed fortunate. When this disappointment occurred you were probably thinking that your supplier was needlessly wasting your time by submitting samples that had never been tested. The time you wasted in making your examination might have been saved had certain pertinent facts been placed at the disposal of the salesman and his technical staff.

For some reason the paint salesman usually seems to have difficulty in obtaining answers to questions that his customer should be only too glad to answer, as the information required is necessary for intelligent recommendations that will give the customer the best product at a reasonable price. We have been told, on occasion, that the customer resents giving this information. When this state of affairs prevailed we could only submit samples prepared on the basis of available information, realizing that they had only a possible chance of being entirely satisfactory.

Perhaps a closer understanding between the customer and salesman may be brought about by outlining here the reasons why complete information is necessary.

In the first place the statement that paint is paint is entirely erroneous. This statement may have been more or less true many years ago when all coating materials were made with the limited choice of ingredients available, but it is not true today. There are hundreds of raw materails to choose from, each of which will do a certain job to perfection. But *no paint can be made that will produce all of the desirable characteristics.* In all paint formulation there is compromise — the sacrifice of properties not essential to the particular job, for those that are essential.

In formulating a paint the individual problem must be considered. No two finishing set-ups are identical. Each case is individual and

must be considered as such if advantage is to be taken of the paint formulator's skill. True, you can find stock items that will fit into your picture, but these products will not produce optimum results. Even in the cases where a stock item will do, many questions will have to be answered before a grade can be specified.

With a complete understanding of your finishing problem your paint salesman will be in a position to inform his technical staff properly. Then they can give you a product that will fit your conditions.

These are the items that must be covered:

Finish Type: The finish type would be indicated as enamel, primer, topcoat, sealer, surfacer, etc. We have received orders for a sample of "green paint." Who knows what the customer might have had in mind?

Government Specification: For obvious reasons, if a finishing material must meet a government specification, that fact should be made known. Yet we have had cases where a development program had been undertaken to formulate a material to have certain characteristics, and later we found the material was covered by a definite specification. The choice of materials permitted in the specification required the work already done to be discarded.

The specification number alone is not enough. Many specifications permit the manufacturer wide latitude in the choice of raw materials, so that a product can be secured that will be best suited to your individual needs. Often specifications cover more than one type of finish, so the color and type or grade must be included in your request. Therefore, though you are obliged to use a specification material, the information referred to here is still of interest.

Priority Rating: The priority rating is important. Some people believe that priority rating should not require discussion when only a sample is being considered. The priority rating will govern the available materials for the job. Before a sample is submitted there should be reasonable assurance that the raw materials used in the product will be available on the rating carried by the customer. The actual rating should be known, as merely an indication that the job is rated will not be enough. The lower ratings have come to mean little in the competition for raw materails.

Color: Color in pigmented products is usually selected from a color card. The descriptive words for color are not satisfactory. There are at least 1000 shades of ivory. Color may be shown by a submitted sample. Where some variation is permissible it is to your advantage to allow your salesman and technical staff to suggest a color. Some colors do not require further blending with other pigments in manufacturing. This operation is called tinting or shading. The choice of a straight color will result in prompter deliveries and possibly lower costs, because of the labor saved in making an individual color match.

In clear coatings the term color is used to indicate variations from water-white to amber. If your product does not require a light-colored clear material you may again enjoy savings, since resins of pale color command a price premium. Refinements in processing for light color add to cost.

(Continued on page 30)

• Mortars... the mighty midgets of warfare... must have the right kind of paint protection against the elements. So must shell casings used in mortars.

That kind of paint needed for mortars and their shells is made by S. C. Johnson & Son. It is available now. Johnson's ammunition finishes meet Government specifications 3-162-B, grades I and II for lacquers—and specifications 3-67-E, grades I and II for synthetic enamels. They are available in olive drab and all colors.

Today, Johnson Specification Finishes provide protection for many types of war equipment used by the Army, Navy, Marine Corps and Maritime Commission. If you need such finishes, call on us. If yours is a special problem, we will work with you to provide just what you need. Write S. C. Johnson & Son, Inc.
Ask for Product Finish Folder F-265 N.

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S. C. JOHNSON & SON, INC.
PRODUCT FINISHES DIVISION
Department IF-83
Racine, Wis.

Gloss or Sheen: Gloss or sheen, described by the words semi-gloss, flat, eggshell, and similar terms are not sufficiently accurate. Many samples have been condemned because one person's concept of flat was not the same as some other person's. You can avoid this pitfall by submitting a sample showing the gloss you desire. Gloss is affected by the surface over which a product is applied, so that too must be discussed.

Surface: The surface over which a materail is appied can be the factor that makes or breaks the finish. The highest quality finishing materials can not be expected to perform on a poorly prepared surface. A coating designed to produce excellent adhesion to steel cannot be expected to give the same results on aluminum, copper, or other metal. Not only must the type of metal be known, but the surface treatment of the metal is important. A highly polished surface may require a different material than a comparatively rough surface.

A *clean* surface is always necessary. The method of cleaning should also be mentioned, whether alkali cleaned, degreased, naphtharinsed or what not. If subsequent treatment is performed with commercial metal-preparing compounds, the type of agent used should be known. If a top coat is to go over a surfacer, the type of surfacer and sanding treatment are important. The best way to describe the surface is to submit a speciemn to your salesman, if this procedure is feasable.

Product to Be Finished: Requests for materials often come in with no indication of the type of product that is to be finished. This information is not only required for end-use data, but will give the technical staff some indicationn of the type of finish that has proved most satisfactory in the past for the particular product.

Application: Many complaints have originated from a misunderstanding about the method of application to be used. The best spray paint will not dip successfully, nor will a dipping paint spray with satisfaction. A paint matched for color by spraying will not give the same color, in many cases, if dipped. Likewise, a paint matched for color by dipping probably will not give the same color if sprayed. For you to receive the color you want will require a full understanding of the application process you intend to employ.

Reduction or Thinning: The reduction desired must be decided upon. Materials designed to be thinned in the ratio of two parts of enamel to one part of thinner cannot be expected to cover if the reduction is one part of enamel to one part of thinner. Many complaints could be avoided if the manufacturer's recommendations were followed as to both type of thinner and amount of reduction.

The reducer or thinner is as much a part of the formula as the pigment or resin. A delicate balance may be disturbed by the use of unsuitable reducing agents. If there is a particular thinner that you have in stock, or that you have standardized on, let the salesman know about that before his sample is submitted. A small quantity of the material will be of assistance in formulating a material to go with it.

Drying Schedule: In the case of baking materials, more failures can be traced to oven schedules than to any other one cause. Baked enamels are sometimes critical both

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DEGREASE & CLEAN
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In war plants across the Nation, these performance-proved alkaline, solvent and acid-type degreasing materials are doing their part in stepping up output, conserving manpower, keeping rejects down on a wide range of war supply items.

If it is smooth-running, trouble-free production you want . . . parts that easily pass inspection for black oxide finishing, plating, lacquering, painting or other finishing operations . . . you can depend on specialized, fast-working Oakite materials to provide the required results and in the time specified.

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Our nearby Technical Service Representative stands ready to bring you the benefits of his specialized experience and knowledge to SPEED-UP your degreasing operations. Whether or not you are now using Oakite materials, his personal service together with the facilities of our Chemical and Mechanical Engineering Laboratories are freely available. Write TODAY.

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to baking time and temperature. The heat indicators of many ovens do not show accurate temperature, and when they are accurate, the reading may show the temperature on only one particular spot in the oven. The other parts may vary up or down as much as 50°.

Unless your oven temperature has been checked recently by a competent technical man, it will be to your advantage to have it done. Your paint salesman or one of the chemists from his laboratory can make the determinations.

An imperfectly cured paint film is almost as bad as no film at all. A film, although hard to the fingernail, if underbaked, will give poor resistance to moisture, etc. An ovverbaked film will be brittle or short, and discolored from the excessive heat. Also, the type of oven you use will have a bearing on the grade of paint most suited for use in it.

Types of Ovens for Baking Finish Coatings

There are two types of ovens in general use, namely, the direct-fired type in which the products of combustion come into contact with the material being baked, and the indirect-fired type, where the products of combusion pass through an air heater, and do not come into contact with the material being baked.

In the case of the direct-fired oven, unless ventilation is unusually good, the products of combustion create what is known as a foul condition which will react unfavorably on certain types of paint products.

A sample of paint that has been tested in a well-ventilated electric laboratory oven, for instance, will not behave the same when baked in a direct-fired, poorly ventilated oven. If the type of oven is known before the paint is specified you will not have trouble with reactions that could have been avoided.

The temperature cycle of a conveyor oven is difficult to describe. We have know of cases where a baking schedule described as 20 minutes at 300° F., was in reality probably only five minutes at 300° F., the remainder of the time being taken up in bringing the work to heat. The best method of getting an accurate record of the actual temperature of a conveyor oven is to run through a recording thermometer that makes a smoked chart which shows the temperature continuously. Then you can avoid underbaking and overbaking, and their inherent hazards.

Infra-Red Drying and Its Special Considerations

Infra-red ovens require special considerations. In the first place, do not try to take the oven temperature with a mercury thermometer. It simply can't be done. The baking is accomplished by the rise in metal temperature under the action of the heat rays, and not by the temperature of the surrounding air. An instrument known as a pyrometer is required to measure the metal temperature. Although advantages in shortening baking schedules can be accomplished, the maximum results can not be obtained unless the paint has been designed for infra-red curing. So let the salesman know if you intend to bake by infra-red.

The air-drying schedule is important. We have examined samples of paint claimed to dry in eight hours, and found that the surface was dry to touch in eight hours, but no where near hard enough to be packed. When you say you want a sample of paint to dry in a certain length of time, you should qualify that statement

by further stipulating what you expect to be able to do with your product at the end of that time. Do you mean dust free, tack free, print free, or hard for packing?

Special Requirements: Re-formulation projects are the consequence of tardy information concerning special tests and resistance requirements. Many times, after the original samples have been submitted, we have reports come in that the material did not do this or that—tests which have not before been mentioned. If you have some special tests or requirements, let your salesman know about them. It will save you time and give you what you want.

Price per Gallon: Sometimes samples are submitted that represent hours of development, but they are never tested. "The price per gallon is too high." Frequently no indication will be given of what is considered a reasonable price. Even so, the price per gallon is not the deciding factor in judging a paint. The only intelligent evaluation results when *unit finishing costs* are compared.

A product at half the price per gallon probably will not produce half as many units, but even though the number of units is equal, there are such things as ease of application, number of rejects, loss from skinning, and kindred considerations to be taken into account. However, this seems to be a difficult point to put across, so if you have some predetermined gallon price you have decided on, it is well to make it known.

Monthly Consumption: A factor in price is the batch size in which the merchandise is produced. Invariably the larger the batch, the lower the cost, and the lower the selling price. Most paint is bought on a monthly supply basis. Many prices are quoted on a minimum batch size, because the customer was either unwilling or unable to estimate his monthly requirements. If you haven't any idea of what is required, the number of units you expect to produce will give the salesman a basis of assisting you in estimating this. A little time spent in estimating the gallonage will give you a fair price, and will save you money.

Unless *all* of the factors discussed in the foregoing paragraphs are fully understood, and a sample of paint has been submitted to you, somebody has had to guess. By giving full information about the job, you will profit far more than the salesman or the manufacturer. You will get a product that fits your individual requirements, at a price commensurate with the volume involved.

You don't want to use paint made by guesswork, do you? Give yourself a break. Tell your supplier what you want, and you will have a pretty good chance of getting it. Be sure to mention the following: Finish type, Government specification, priority rating, color, gloss, surface, surface treatment, product to be finished, reduction, reducer or thinner, method of application, drying or baking schedule, oven type, special requirements and tests, desired price per gallon, and estimated monthly consumption.

New Wrinkle Lab. Is Moved

New Wrinkle, Inc., Dayton, Ohio, announces removal of its research and development laboratories to new quarters adjoining the general offices at 314 W. First St., Dayton, Ohio.

The company is a research and development organization serving some 200 plants located throughout the country and abroad—companies manufacturing Wrinkle coating compositions, synthetic resins and related products widely used in industry.

Fig. 1—The roll-coater with operator standing at infeed side of machine.

Roll-Coating Plywood Parts for Lockers

BY MERLE W. BAKER
Director of Research
Curtis Companies Inc.

WHEN CURTIS COMPANIES, INC., started manufacturing storage lockers at their Clinton (Iowa) plant, it was decided to use the roll-coating process for application of enamel to as much of the material as possible. Since the roll-coating process is very rapid, does not require the services of a highly skilled operator, and is an economical method of coating, this plan seemed to be especially desirable for the type of work at hand.

Accordingly, a well-known manufacturer's roll-coater was purchased, to be used for this purpose. This machine is a 50-in. No. 22-D glue spreader, which had been altered slightly to be used for spreading paint. It is equipped with variable speed drive, and a

Murphy Moisture Repellent Sealer No. 30 for Plywood is no war baby, but a tried and proven veteran in the plywood field. It was evolved by men who know wood as well as finishes. And it is backed by years of practical experience in furnishing protective coatings for a wide variety of plywood products that have to withstand all sorts of climatic conditions.

MURPHY
Moisture Repellent Sealer No. 30

is being used in ever increasing quantities by makers of plywood products serving the armed forces — airplanes, gliders, army cabinets, cold storage fixtures, overwater kit containers, shower stalls, signal corps operators' huts, etc.

Whether your methods call for dipping, brushing or spraying, No. 30 has the penetrating ability necessary to provide a "breathing," dependable, moisture-resisting seal. It also provides a firm bond for the finish that goes over it. And it accommodates itself perfectly to the action and characteristics of plywood.

Write for leaflet on No. 30

Put your plywood finishing problems up to Murphy

MURPHY VARNISH COMPANY
NEWARK SAN FRANCISCO CHICAGO

Murphy Protective Coatings

circulating pump unit which moves the paint from the lower reservoir up to the spreading rolls. The spreading rolls are faced with smooth synthetic rubber.

Each Locker, 16 Parts; A 2-Coat Paint Job

The lockers we manufacture are finished with one coat of synthetic enamel primer and one coat of synthetic enamel finish. Each locker has 16 parts, which are either primed or which have both coats applied to their flat surfaces by the roll-coater. Each locker side and the locker back have a stile-and-rail framework and a cross rail with two panels inserted in the framework. Each unit has two doors similarly constructed. All of these panels and the top are ¼-in. 3-ply Ponderosa pine plywood. There are also four shelves and a bottom, all made of ⅝-in. edge-glued white pine.

Fig. 2—A back panel being racked after application of the prime coat.

All of the ¼-in. plywood panels are prime-coated with the roll-coater. Then, after being sanded, they are sent back into the factory for installation in their respective unpainted frames. The illustration marked Fig. 2 shows a back panel as it is taken from the roll-coater. After the panels are inserted in their frames, the sides, backs and fronts (with the two doors installed) are then returned to the paint department and the frames are sprayed with the prime coat. The second coat is then sprayed over the entire surface of each member.

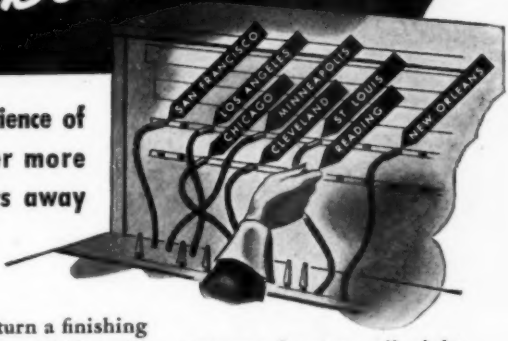
The shelves and bottoms are brought into the paint department while stacked flat and evenly on trucks. They are wheeled to a spray booth where the prime coat is sprayed on all edges. The prime coat is then applied to the flat surfaces of these pieces with the roll-coater. The finish coat is rolled on these parts the same day. After drying, the pieces are stacked flat, and evenly at the edges, so the edges can be sprayed with the finish coat. The illustration, Fig. 3, shows a shelf being taken from the roll-coater after application of the prime coat.

The ¼-in. plywood tops are primed on the edges with a spray gun while the pieces are stacked flat, with the edges evenly aligned. The flat surfaces are then primed and finished by passing them through the roll-coater. Since the edges of these panels are not exposed, they are not given the final finish coat.

How We Support Roll-Coated Panels

When the freshly coated pieces are taken from the roll-coater they are placed on edge in a portable rack or truck, which is especially

8 Finishing Research Laboratories are Better than 1



And the Experience of All 8 is Never more than 12 Hours away from You

● When you turn a finishing problem over to Glidden, the chances are that you'll get a *better* solution—in a hurry. Because the combined experience of Glidden's *eight* laboratories is at your service.

You not only have a complete research laboratory nearby that is familiar with finishing problems peculiar to your area, but you get the extra advantages of the constant exchange of research developments between all eight Glidden laboratories.

The combination of this vast nation-wide experience enables Glidden chemists to solve your wartime finishing problems faster and better.

Try this Glidden service on your next finishing problem. Even though you are located in the most remote industrial area, this service is never more than 12 hours away.

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★ ★ *Everywhere on Everything* ★ ★

Fig. 3—A locker shelf being removed from the roll-coater and racked after application of prime coat.

designed to furnish a 3-point support for the edges of panels, and at the same time prevent painted surfaces from touching one another. This is accomplished by having three notched members extending lengthwise of the truck—two parallel, but spread apart at the bottom, and one extending high along one side, which we usually refer to as the "back." This arrangement enables our workers to place the painted panels on edge and in upright position quickly and without much effort—and they remain where they are placed. Incidentally, this position of the painted panels serves to accelerate drying of the paint coating.

Ordinarily one person feeds the roll-coater while two people take away from the machine and rack the coated pieces.

The results obtained with the roll-coater have been gratifying in every respect—excellent coverage, safety, economy and speed, without extra equipment or accessories. Should conditions warrant, our roll-coater's present production could probably be doubled, if we provided enough drying racks to handle the increased output.

Alkyd Resin Paints

DUE TO the enormous demand for alkyd resin paints by the Army and Navy, the Glycerine Producers Association has placed resins first on its research program.

Glycerine and phthalic anhydride, according to the Association Research Committee, are essential ingredients for the alkyd resin paints which are used universally to protect our ships, tanks, planes, jeeps, trucks and other military equipment against weather, salt water, driving sand, rust and hard wear. Estimates received by the Committee show that 42% of the 1943 glycerine production available after fulfilling lend-lease requirements will go into these extra-tough coatings.

Resins were one of the first subjects investigated when the Association's research work began 17 years ago.

Next to resins as the objective of glycerine allocations this year come explosives. It is expected that 23% of the 1943 absolute glycerine production, now estimated at about 150,000,000 lbs., will be for this war purpose.—G. P. A.

In the early days of wood staining, each finisher made his own stains from special formulas which he may have inherited from his father. Today most stains are made by manufacturers specializing in these materials.

A HARD NUT TO CRACK

Most War Products Present Finishing Problems That Are Hard to Solve

Walker laboratories have been called upon to solve many problems connected with finishing war items of all descriptions, and their experience in formulating and supplying trouble-free specification finishes to war production industries is at your command.

Walker Protective Coatings stand the pressure of unusual stress and strain; they protect against extreme weather conditions; afford flexibility when meeting unusual requirements; adhere tenaciously to all surfaces. Walker's finishes—on land, on sea and in the air—are helping to do the job right. ON TO VICTORY!

for

PRIMERS
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"Call on Walker"

H. V. WALKER CO.

Elizabeth, New Jersey

MODERN PRODUCTION FINISHES

Here is the article you requested. I am also including a rough sketch of the ammunition box, which I think might be of interest to readers.

You will probably notice that the article is short, but between my work here at the plant and in my Victory garden—this is about all I could find time to squeeze in.—

C. J. Romary

HOW WE TOOLED UP TO PAINT

Ammunition Boxes

BY C. J. ROMARY
Finishing Foreman

CHANGING from civilian production to government requirements presented no insurmountable obstacles, but it did call for quick and practical common sense thinking. It called for using our available equipment, with a minimum number of changes. And yet we must stay within the specifications set forth by the contract in regard to finishing. Our maintenance department had already been taxed to the breaking point, due to the ever-growing changes in other departments. We were told to cut all corners possible, so that we might ease the load that was burdening this maintenance department.

With the above thoughts in mind, we set out to paint ammunition boxes for the Government. However, before going into the more detailed account of our finishing, it might be well to give a brief description of our equipment. We have two continuous conveyor chains. The No. 1 chain runs through our vapor degreaser, into a dip tank and through a 90-ft. 4-pass, overhead oven. The No. 2 conveyor does not have its own degreaser, but feeds from the No. 1 chain, which runs parallel to the No. 2 chain just before entering the dip-room. The No. 2 chain passes through two spray booths and then enters a 90-ft. 4-pass overhead oven. After baking, the chain carries the material to the unloading zone where the necessary wrapping or packaging is done.

We Prime-Coated Parts Before Assembly

Government specifications called for a 2-coat job, with all parts covered as completely as possible. This meant that we would have to put on the prime coat before fabricating and assembling some of the parts. We found a prime-coat material that would stand both the close scrutiny of Government inspectors, along with their regulations, and also the hard pounding of our forming presses.

This problem licked, we decided to dip the first coat of paint on our

DEOXIDINE

FIRST AND STILL THE BEST ANSWER TO

A Proper Preparation of Steel Surfaces For Lasting Paint or Varnish Finish

Requirements of Army and Navy Ordnance Departments have made necessary the use of steel for shell and cartridge cases. Proper protecting finish of these steel shell cases to withstand shipment under all climatic conditions is vital. Deoxidine No. 170 meets U. S. Ordnance Department requirements for efficiency in removing rust and neutralizing rust producers before protective finishes are applied.

ACP Research Laboratories developed Deoxidine at the time the automobile manufacturers were having trouble introducing steel bodies, due to unsatisfactory paint finishes. The development of Deoxidine made possible a proper, lasting finish for the steel body. Refrigerator manufacturers and countless other steel fabricators of products requiring paint finish were quick to adopt the Deoxidine method.

DEOXIDINE

- Removes Rust
- Eradicates Rust Producers
- Removes Light Oil
- Removes Annealing Scale
- Produces a Minutely Etched Paint Receptive Surface

There are numerous types of Deoxidine to meet the varying needs of manufacturers. The experience of the ACP Laboratories and Technicians is at your service in adapting our products to your particular requirements.

MANUFACTURERS OF INHIBITORS AND METAL WORKING CHEMICALS

CHEMICALS ACP PROCESSES

AMERICAN CHEMICAL PAINT CO.

AMBLER ACP PENNA.

Note—West Coast Plants may address inquiries and orders for prompt delivery to Leon Finch, Ltd., 726 East 59th St., Los Angeles, California.

AMERICAN CHEMICAL PAINT COMPANY, AMBLER, PA.

Please send me Bulletin on DEOXIDINE

Name_____ Title_____

Company_____

Address_____

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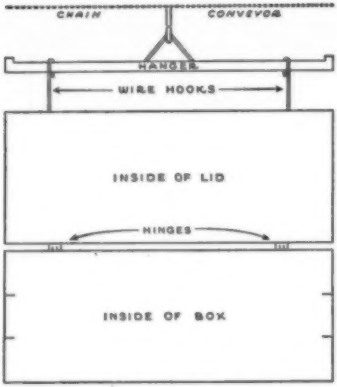

Simple diagram showing how we hung the assembled boxes, in open position, to swiveled hooks of the overhead chain conveyor, so that our spray operators had access to all surfaces inside and outside the box.

No. 1 line, unload it and send it to the press room for fabricating, and then back to the finishing room for the second and final coat on our No. 2 spray line.

The body of the box came to us cut, trimmed, notched, pierced and partly formed; final forming was done after painting. Around the top edge of the sides of the box, a reinforcing wire had to be pressed into place after painting. This was done to insure absolute coverage of the entire surface.

A handle for the box (a 5/16-in. rod, 14-in. long) was prime-coated and sent to the press room for forming. A double separator, positioned at each end, inside the box, was also painted before forming to insure complete coverage.

All of these parts just mentioned were subjected to a most severe abrasive test. We found out that by maintaining a standard viscosity, our paint would withstand this test. Once the paint went beyond our standard or became too heavy, the presses ruptured the surface of the paint.

After all of the parts are prime-coated, several of them, such as the ends, separators, formed handles, handle clips, and handle stiffeners were sent to the riveting machines where they were assembled in the standard manner. In the meantime the hinges and clips were being riveted to the box body, which was then formed to make two sides and a bottom. With the box bodies formed and the ends assembled, they met at the "locking-in" press. The lids, which had been prime-coated like the other components, were then riveted to the box.

Cleaning "Forming-Press Oil" From Prime-Coated Surfaces

The assembled box was now ready for the finish coat. However, in forming the box, a small amount of oil was used on the dies, and this became deposited on the prime coat. Obviously this oil had to be removed before painting, and it had to be removed with something that would not harm, in any way, the prime coat that we had applied and baked on the box. The method we adopted is an old-fashioned one, but nevertheless, it was successful as well as economical. We used a naphtha rag and rubbed very diligently, rinsing the rag as often as needed to keep it clean.

Overhead Chain Conveyor

Our spray conveyor, as previously mentioned is continuous and has pivoted or swivel hooks every 2-ft. This spacing proved ideal, as our boxes, when placed at right angles to the chain, would make any ascent or descent, as well as any curve, without touching each other. (The boxes were about 8¾-in. wide, 22-in. long and 9-in. deep.) To spray a complete box in one op-

Now Available for War Work

NEW HILO RIP-PL FINISHES

with LINSEED OIL base

These new Hilo RIP-PLS may be baked or air dried and will bake *harder* in *less time* than old type wrinkle finishes. Will also work in an open flame oven.

May be baked hard in 30 minutes at 300° F., or in 4 hours at 150° F.; under infra-red lamps in 20 minutes at 260° F. They will air dry hard in 48 hours at 70° F.

These new Hilo Linseed Oil Rip-pl Finishes are now available to war implement manufacturers.

WRITE TODAY *for samples and further details*

HILO

HILO VARNISH CORP. Established 1863

42-60 STEWART AVENUE BROOKLYN, N. Y.

CHICAGO: 2420 Washburne Ave. BOSTON: Park Square Bldg.

eration called for some thought on how to hang it so that our sprayers could cover the entire surface.

Hanging Boxes on Conveyor So They Could Be Sprayed

We designed a hanger the length of the box with a hook in the center, see sketch. This hanger hangs from the swiveled hook on the conveyor chain. Then we made wire hooks which we attached to the lid of the box and hooked over the hanger, with the body of the box hanging open, thus exposing its entire surface to the sprayers.

Note: Both the box and its lid had recessed and raised places. In two recessed places on the top of the lid, short studs, each with an eyelet, were riveted in position to receive spring clips which locked the lid in closed position when so desired. Our wire hooks were inserted in these eyelets, to hang the boxes to the conveyor hanger.

This set-up made it possible for us to spray on an average of 7,000-sq.ft. of surface, per sprayer, in eight hours.

Licking the Stencil Problem

After baking the final coat, a description of the contents (when filled) had to be stenciled on both ends, the front and back of the box. This was accomplished by setting up a straight line of tables and using helpers to aid the stencilers to keep the boxes moving.

However, before stenciling the boxes, we had many interesting experiences in obtaining the right method, and also the right paint to do the job. An ordinary stencil ink would have called for forced drying, which would have meant more equipment. To air-dry ordinary stencil ink would have meant storing the boxes before wrapping them. This, of course, would have taken up quite an area of space, as well as requiring another handling operation.

Accordingly we set out to obtain an air-drying paint that would dry almost instantly. We found one to the satisfaction of everyone concerned. We used a spray gun with very low pressure, sprayed our boxes on a table, kept them going in a straight line, until finally they reached our wrappers. All we needed was a bank of 25 boxes to insure proper drying before wrapping.

We finished several hundred thousand of those ammunition boxes in the manner described and did not receive any major complaints. So, in summing up, we might say that the old adage: "Necessity is the Mother of Invention," was certainly true in our case.

One of many different shaped parts that are made of plywood. This might be a plywood tail cone for plywood gliders. Courtesy of Catalin Corp.

NOT "MAGIC" JUST "KNOW HOW"

Pearl Harbor came with the suddenness of a tropical storm. But we were prepared. Years of laboratory and practical research in the field of industrial coatings had provided us with a solid foundation of experience in developing finishes with special characteristics. Hence we were able to take the war situation in our stride. Protective finishes, camouflage paints, reflective and non-reflective coatings, identification colors—all have been developed in our laboratories to meet Government specifications, under every shop condition and method of application. There is no magic about it—just "know how". Our laboratories are at your service for the solution of any finishing problem. Give us a call at our expense: Phone CEdar 8100 (Pittsburgh, Pa.).

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Manufacturers of
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FINISHES AND LITHOGRAPH COATINGS

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TOUGH JOB HEADQUARTERS

℞ **Prescription Finishes**

Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

More Real Safety in Your Finishing Room

BY WEB DUNNING
Superintendent of Finishing

Superintendent of finishing in large plant calls attention to several features in an all-out safety program for industrial painting and finishing rooms; for example, the precautions taken to prevent a fire from starting, how to fight a fire that does start, how to reduce accidents, safety of workers' health, shop inspection, etc.

UNFORTUNATELY, most of the materials used for product painting and finishing are highly inflammable, and the fire hazard due to their presence and use is a potential source of danger to the entire plant. A fire in a finishing room is difficult to control; once started, it may not only endanger human lives but often it may result in the loss of workmen's jobs due to destruction of the factory.

The first steps toward minimizing fire hazards in finishing rooms are to: 1) observe safe practices and, 2) have available proper safety equipment. Insurance companies and Underwriters' Associations make recommendations for proper practices and equipment designed to reduce fire hazards. They also have engineers who make regular inspections to see that recommendations are being followed and that the equipment is in good order.

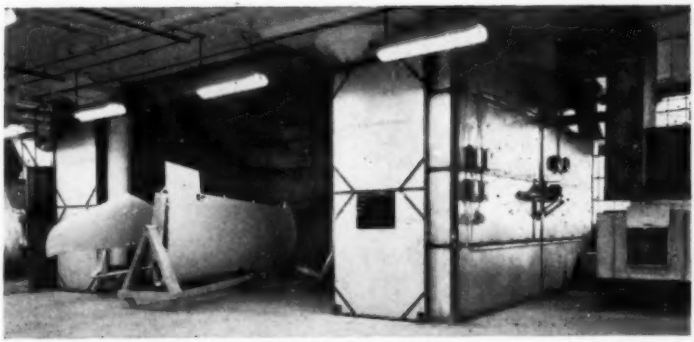
Most manufacturing plants are now equipped with sprinkler systems, and many finishing rooms have vapor-proof lighting fixtures, sprinklered booths, automatic fire doors that close off a spray booth in case a fire occurs in it, and automatically operated doors that shut off any part of the building in which a fire gets started. Adequate provisions are made for the removal of fumes and vapors, and extinguishers are conveniently located.

Electrical Safety; Inflammable Articles

As part of the safety equipment for finishing rooms, all electric wiring should be of an approved type and enclosed in conduits. Enclosed safety switches should be provided for motors and lighting, and explosion-proof electric motors should be used where necessary. Self-closing metal trash cans, for rags and rubbish, should

GIVING "WINGS" TO PRODUCTION

of plywood training planes!



ANOTHER OUTSTANDING INSTALLATION OF EQUIPMENT FOR FORCE-DRYING PLYWOOD FINISHES BY KOCH

This huge KOCH Humidified-Air Dryer is giving "wings" to production of one of the Army's new plywood training planes. By forced drying the finished sections valuable time is saved, labor and space required for overnight drying is eliminated, and "on schedule" production is maintained in the finishing department, regardless of outside atmospheric conditions.

This is just another example where KOCH'S years of experience in designing and building force drying, finish baking, and spray systems is paying off in results. Let their engineering staff apply this experience to your finishing problems and give "wings" to production in your finishing department.

GEORGE KOCH SONS, INC.

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Makers of *Industrial Equipment*

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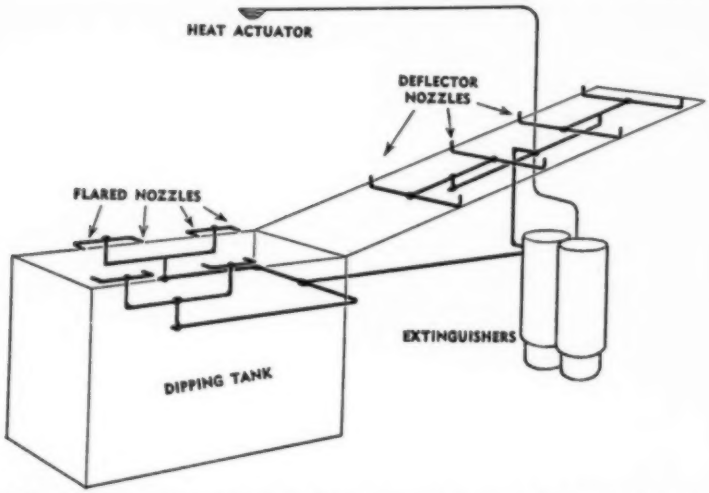


Diagram of automatic fire-extinguisher equipment arranged to function in case a fire starts in or near an ordinary dipping tank or drainboard. Drawn from a typical Foamite System, as illustrated in literature of the American-La France-Foamite Corp., Elmira, N. Y. In case of fire the heat operates the actuator, the solutions in the two extinguisher tanks mix, and fire-smothering Firefoam instantly covers the burning surface.

be handy to all workmen. Brass, bronze or copper tools and scrapers should be provided for cleaning the interiors and floors of spray booths, exhaust fans and exhaust pipes. The use of copper, brass or bronze is recommended in order to eliminate the danger of striking sparks when making violent contact with the iron or steel of spray booths. Provision should be made for suitable places for workmen to hang their overalls or work clothes. The best method is to furnish steel lockers—when these are available.

Dip Tank Safety; Cleanliness in Finish Room

Covers should be provided for all material containers, particularly dip tanks. A good practice, in connection with dip tanks, is to install extinguishers above and suspend them in position with fusable metal links so that they will automatically dump their contents and cover the tank should a fire occur at this point.

Good housekeeping in the finishing room—that is, cleanliness and orderliness—is the next important step in reducing fire danger. This means orderly arrangement of the products in process of being painted or finished, so that all aisles are kept clear; nothing is piled against the automatic fire doors which might prevent their proper operation; floors and benches kept clean; rags and rubbish regularly removed; spray booths and equipment scraped down regularly; and clothing

MAHON

"Built-for-the-Job"

FINISHING SYSTEM

...for Ammunition Boxes

Boxes come off finishing line prepared to meet Ordnance Department salt spray test.

A specially designed jacketed dip tank maintains the paint at a temperature most effective for application to the metal.

Here is a Complete Mahon System for finishing Ammunition Boxes to meet Army and Navy specifications that is typical of several such installations Mahon engineers have developed. All finishing operations—metal cleaning, bonderizing, drying, painting, baking and cooling—have been expertly consolidated into a compact, continuous production line that economizes space and manpower—and by eliminating lost motion, steps up production time. If your specifications call for the finishing of ammunition boxes—or any product of like nature—Mahon engineers are prepared to give you some first-hand pointers that should prove decidedly helpful. Phone—write or wire—for consultation.

THE R. C. MAHON COMPANY

DETROIT — CHICAGO

Manufacturers of Metal Cleaning Machines • Rust Proofing Machines • Hydro-Filter Spray Booths • Ovens of All Types • Filtered Air Supply Units • Hydro-Foam Dust Collectors—and Many Other Units of Special Production Equipment—including Complete Finishing Systems

S-W WAR FINISHES

SHERWIN-WILLIAMS WAR FINISHES GIVE PLUS PERFORMANCE IN ACTION ON EVERY FRONT

DURABILITY **PLUS**

UNIFORMITY **PLUS**

UNIT COST ECONOMY **PLUS**

SYNCHRONIZED TO PRODUCTION **PLUS**

Front-line punishment is the MINIMUM test of a war finish! That's the ideal set by Sherwin-Williams in the development of finishes with the "plus" performance that wins in any part of the globe!

SHERWIN-WILLIAMS 4-TEST SYSTEM FOR PLUS FINISHES!

FIELD RESEARCHED! S-W technical men get *all* the facts—surface, production system, time schedule, performance needs.

LAB TESTED! Sherwin-Williams Plus Finishes must pass with flying colors the most rigid of performance tests.

SHOP TESTED! Sherwin-Williams Plus Finishes must meet the most exacting production line requirements of wartime finishing.

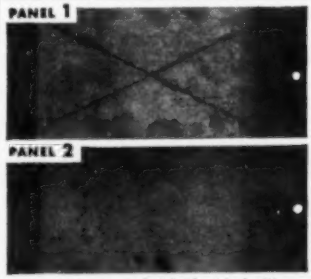
COMBAT TESTED! Final proof of a Plus Finish—the grueling tests imposed by actual battle conditions all over the globe!

SHERWIN-WILLIAMS

FOR THE ANSWER TO ALL INDUSTRIAL OR WARTIME FINISHING QUESTIONS

ARE GLOBE-TESTED!

S-W TANK FINISHES PROVE PLUS PERFORMANCE IN 6 MONTHS' COMPARATIVE EXPOSURE TESTS



Panel No. 2 was finished with the Kem Lusterless Enamel System. There is *no* corrosion. Protection was perfect after 6 months' exposure testing. This typifies the plus performance which Sherwin-Williams Finishes are giving 'round the globe.

As a center of war paint production, Sherwin-Williams is in contact with every important event concerning wartime finishes. What is more, Sherwin-Williams supplies finishes for every type of wartime job. That is why you'll save yourself time, trouble and worry by letting Sherwin-Williams answer your war finishing questions, fill your war finish needs.

WHEREVER YOU ARE . . . WHATEVER YOUR FINISHING PROBLEMS . . . GET IN TOUCH WITH US TODAY!

INDUSTRIAL FINISHES

WRITE, WIRE OR PHONE THE SHERWIN-WILLIAMS COMPANY, CLEVELAND, OHIO

hung in its proper place. Each workman should keep his working space clean.

The tops of work benches and the floor underneath the benches should be free from sand dust, old sandpaper, rags, waste paper or other trash. Dust is highly inflammable—often it is as much of a fire hazard as volatile finishing materials. Trash cans, preferably the kind with self-closing covers, should be conveniently placed so that they can be easily reached by all workmen. These containers should be emptied at the end of each work day — oftener if it is feasible.

It is well to have containers of water in which to put filler and stain rags, or rags which have had bleaching materials on them.

Insist Upon Keeping Spray Booths Clean

Spray booths should be cleaned each night and the spray dust removed. This is particularly true if both varnish and lacquer have been sprayed in the same booth. There is danger of spontaneous combustion if these materials are sprayed in the same booth, especially if one material has not dried before the other is sprayed.

As previously suggested, copper, bronze, or brass scrapers should be used in cleaning spray booths. Work clothes should be hung in the proper place when not in use, and care should be taken that rags or waste are not left in pockets. A change to clean overalls should be made at least once a week—preferably twice a week. Regular periodic inspections and lubrication of motors, fans and other moving parts of equipment should take place to prevent bearings from becoming dry and running hot.

Precautions to Observe When Using Bleaching Compounds

Particular attention must be given to the proper use of certain finishing materials. For instance, if a bleaching compound is being sprayed, the spray booth and equipment must be absolutely clean. After spraying bleaching material the booth should be washed down with water. Rags or waste used with bleaching compound should be disposed of quickly, preferably put into a container of water.

Finishing materials that dry by oxidation are apt to cause spontaneous combustion when in contact with rags. Linseed oil, varnishes, fillers, uniforming stains and blending stains are particularly dangerous in this respect.

Have Fire Drills to Teach Workers Where, How and When

It is good practice to have organized fire drills in the finishing room. These should take place at least once every three months. The purpose is to train the men to go to certain stations when the alarm is sounded, and to get extinguishers or other fire-fighting equipment, and to proceed to the location of the fire.

Usually the foreman should be the captain of the fire crew, and under him leaders should be chosen for the various squads. Each squad should be assigned to some particular extinguisher or other equipment. In this manner confusion is avoided, fire-extinguishing equipment can be more quickly brought to the necessary place, and there is less danger of panic ensuing in case of a real fire.

Aside from the fire hazard in connection with the use of finishing materials, there are other considerations in the use of various materials for safety's sake. Certain

HAVE YOU A

Problem Child

IN YOUR FINISHING DEPARTMENT?

BILLY WRINKLE SAYS:
LET'S LICK IT WITH
LABORATORY
RESEARCH AND
WRINKLE FINISH

The new spraying, baking and cooking room at the New Wrinkle laboratory.

A section of the laboratory devoted to general testing. Equipment includes a Paint Mill and Salt-Spray Cabinet.

A recent expansion program has doubled the laboratory research facilities of NEW WRINKLE, and before many months pass they will have been trebled! This makes it possible to extend our service to a greater number of manufacturers with finishing problems. Tell us what they are. There is no question but what we can help you materially.

Another section of the enlarged laboratory where testing is conducted. In the background, to the right, is an accelerated

Write for a free copy of NEW WRINKLES IN FINISHING. It shows what can be done to meet finishing conditions as they exist today.

NEW WRINKLE INC.

314 W. FIRST ST. · · · DAYTON, OHIO

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precautions in the use of bleaching materials have been discussed. It might be well to add here that when bleaches are being sprayed, it would be well for the spray operator to wear a respirator or a mask of cloth covering his nostrils so that the vapor or spray mist will not be inhaled. The same would be good practice when spraying highly volatile substances such as non-grain-raising stains.

Other Things That Make for Safety

We must not overlook the ordinary safety precautions which apply not only to the finishing room but to other parts of the factory as well. Some of these are proper guards around moving parts of machinery, elimination of protruding nails from walls and posts, making loose floor boards secure, seeing that floors are not too slippery, elimination of any danger of pieces falling from overhead conveyors, having proper tools and equipment for handling and opening drums and barrels, keeping windows and light fixtures clean so proper light is assured, and of course, reporting all injuries, great or slight, immediately for first aid treatment.

As in the case of reducing costs, the alert workman can do the most to promote safety in the finishing room. He can do this by keeping his own work space clean and orderly, and he can offer suggestions or recommendations for improving safe working conditions in general.

Glyco Products Moves

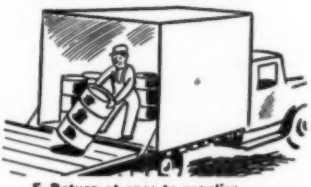
Glyco Products Co., Inc., Brooklyn, N. Y., in line with their expansion program, have moved their administrative offices to larger quarters. The new address is 26 Court St., Brooklyn, N. Y.

1–Don't discard empty drums.

2–Treat them gently.

3–Keep them under cover.

4–Replace plug in empty drum.



5–Return at once to supplier.

If you want to help the war effort just follow these rules shown above. From "The Blue Knight "(June) by Roxalin Flexible Finishes, Inc.

MAAS & WALDSTEIN

Announces

VICTORY WRINKLE FINISHES

—Without CHINAWOOD OIL

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Because of a shortage of Chinawood oil the use of standard wrinkle finishes has been prohibited by the Government, except for a few special applications.

M&W research has developed a complete line of wrinkle finishes that contain no Chinawood oil but closely resemble our standard Duart wrinkle finishes in all other respects.

They form hard, durable coatings; they cover rough metal surfaces effectively in a single coat; they are applied in regular wrinkle patterns by the same methods; and they are supplied in a full range of colors.

Send for full information.

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WRITE OR WIRE THE DU PONT WAR SERVICE MEN OR M

☐ *How to speed output and save materials*

Handy pocket-size, fully illustrated booklet, *"Hints on Wartime Finishing Economies."* Shows you 11 points to check for greater efficiency and speed on your war contract finishing schedules.

☐ *How to meet emergencies and solve problems*

Check here for the help of Du Pont War Service Men—skilled "trouble shooters" to straighten out "kinks" in your finishing system *before* or *after* the trouble occurs. Their "know-how" is at your disposal on any war contract finishing. Write about your trouble. Or wire in case of emergency.

g D:ctors

or how a Du Pont war service man put a finish to a finishing bottleneck

SPECIFICATIONS are usually exacting as to type of finish. But frequently the job of applying the finish, and at the same time meeting *stepped-up* production schedules, is another matter.

For instance, a certain company had a subcontract for air deflectors used in the cooling system of aviation engines. The plant was humming and deflectors were rolling along until they reached the finishing line. There they "moved into low gear." The finishing line couldn't keep up with the stepped-up production of the rest of the plant. Before long, the bottleneck not only upset the schedule in this plant . . . it bogged down production of the engines themselves!

At this critical time, a Du Pont War Service Man was called in. With his "know how" and thorough knowledge of finishing problems, he put his finger on the difficulty. Using a pyro-millevoltmeter, a highly sensitive specialist's instrument, he measured the variations in temperature of the metal as it passed through the oven. With this information, he made a slight change in formula within specifications and then increased the conveyor speed from four to nine feet a minute (more than doubling the output of the oven). As a result, the finishing line was able to match manufacturing output. And the production bottleneck was smashed.

Wherever you are, there is a Du Pont War Service Man eager to help solve your finishing problems. His extensive training and the experience he has gained through his many contacts, will be of real practical value. They're yours whenever you need them.

E. I. du Pont de Nemours & Co. (Inc.) Finishes Division, Wilmington, Delaware

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If you're getting in the swim of war orders you'll need finishing materials that meet all U. S. Government specifications and requirements.

For workability, speed and freedom from rejects use Rockford finishing materials. They are fulfilling the most rigid requirements for bombs, shells, aircraft, canteens, camouflage, machine tools and numerous other wartime products.

Your inquiry will receive our prompt attention.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

Special Glue Size Saves Lacquer

THE ECONOMICAL use of lacquer is an evident necessity. To those manufacturers who are trying to perform lacquer operations on a 50% curtailment basis, it has become necessary for them to conserve by utilizing an undercoat of some material other than lacquer. One solution to this problem has been the use of a plasticized protein.

Collagen-derived proteins are hydrophyllic colloids which naturally resist oil. A protein material is used as a sizing agent in a diluted state. If the sizing agent were spread over the surface in a concentrated form, the film would dry to a hard horny mass which would show cracks. To overcome this cracking and give a smooth even surface, *these protein materials have been plasticized so that they give a smooth, glossy finish of a high solids content.*

The production of large quantities of proteins have naturally led to the formulation of various types of placticized and liquified protein compounds. A product of this type is Evertack Liquid Glue.*

For many years straight protein materials have been used as sizing in paper, rayon, wicker furniture, and innumerable other places where it is desirable to increase the stiffness of a product or prevent the penetration of oils, greases or paint.

In reality then, the use of a plasticized protein film as an undercoat or sizing agent is not a new, but is merely an improvement over an old principle. For example, Evertack Liquified Glue is now being used on such operations as an undercoat for lacquer in the pencil trade; a sealing compound in the folded seam of a steel solvent drum; as a seam dope in the manufacture of fiber cans. In all of these uses the hydrophyllic properties of the plasticized proteins are used to prevent the penetration of paint or oil, or solvent materials—whether it be into the wood of a pencil or through the seam of a paint can or through the seams of a solvent drum.

In addition to cooperative work, actual test specimens were made up in a paint shop by experienced painters. Samples of spruce, cedar and pine were covered by using both a spray gun and brush. These coatings were allowed to dry for one hour, and then coated with a commercial blue lacquer.

Visual inspections of these samples immediately showed the merits of a plasticized undercoat. The effect and value of the application of a plasticized undercoat becomes further apparent after studying photomicrographs of specimens taken by the Research Laboratories. These pictures show surface and vertical views of the specimens.

In the cross sections the top dark layer is the blue lacquer. The next layer, almost transparent in appearance, is the plasticized protein and the remaining material shown in the photomicrographs is wood.

The natural resistance of collagen-derived protein to lacquers, paints and oils has given rise to its use in many other fields.

For example, the common fir stave barrels can now be used for oils, thanks to the use of plasticized protein coating on the interior.

(To page 60)

*This product is manufactured under U. S. Patent No. 1950483.

Saturated paper is made by the impregnation of a plasticized protein. Saturated paper can be dye-cut to form innumerable types and shapes of gaskets which are very resistant to oils.

The use of plasticized proteins in conjunction with paper has enabled the paint and oil manufacturers to use a fiber-side-wall can.

PROTECTIVELY DRESSED

While the accompanying picture was sent in (with descriptive literature) to call attention to the all-plastic ventilated goggle with Plexiglass lenses, our first reaction was to notice how sensibly and safely the young woman worker is dressed. Study this picture and we believe you will agree that what she wears (whether or not she needs goggles) offers much in the way of industrial protection—without entirely erasing the feminine appearance, which is quite attractive.

Photomicrographs of other less plasticized protein materials show a distinct tendency to crack or pit; or, if the protein products are diluted much beyond 25%, the products are absorbed by the wood and lose some of their effectiveness.

It is believed that this study shows one way in which our limited supply of available lacquer can be economically used.—C. S. YOUNG, Glue Division, Swift & Co.

Among the substances used to produce flatness (low gloss) in finishing materials is a diatomaceous earth which is made up of the skeletons of microscopic one-celled aquatic plants.

Sherwin-Williams to Have Plants in Mexico and Brazil

Announcement of plans for the construction of two new paint plants, one in Mexico City, Mexico and the other in Sao Paulo, Brazil, has been made by George A. Martin, Chairman of the board of the Sherwin-Williams Co. Recently returned from a 16,500 mile trip through Central and South America, Mr. Martin disclosed that actual work on the new projects, which are to cost approximately $1,000,000, would commence as soon as construction materials are available—probably not before the close of the war. Meanwhile, the company will continue to operate its plants in Havana, Cuba and Buenos Aires, Argentina.

In commenting on the expansion, Mr. Martin said that it was a move supported by sound logic and facts. "There is a world of business to be had in our American continents and it seems logical to develop our facilities for serving these vast markets. Present conditions, together with our forced withdrawal from the European and many other world markets, which resulted in the recall of our sales representatives from those countries, seems to bring up the question of whether and to what extent we will go back into these markets after the war. It looks to me as though American companies like our own can keep busy supplying the needs of North, Central and South American countries."

Remember Pearl Essence for

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BRASS
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finishes

INCREASED LUMINESCENCE
Patent No. 2,318,089
See U.S.

THE MEARL CORPORATION
153 WAVERLY PLACE NEW YORK, N. Y.

Factories

ROSELLE, N. J.

EASTPORT, ME.

MEARLMAID
PEARL ESSENCE

Priority Rating Is Not Required

Available in Unlimited Quantities

"WORLD'S LARGEST PRODUCER OF PEARL ESSENCE"

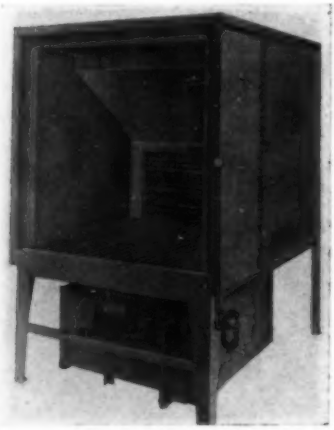
Materials Supplies Equipment

Spray-Degreasing Booth

A new spray-degreasing booth announced by The DeVilbiss Co., Toledo, Ohio, is reported to combine those features that have proved themselves most desirable in hundreds of units built by this manufacturer for industry and the armed services during recent years.

In view of the war-born shortage of organic solvents of the type used in degreasing operations, one of the most important of the merits claimed for this new spray-degreasing booth is its ability to hold solvent loss to barest minimum. Engineered for safe operation, even when hazardous materials of high volatility and very low flash-point are used, the new unit also removes fumes more thoroughly and delivers a more forceful, harder-driving solvent spray, according to reports.

The booth is made in 14, 16, and 18-gage steel. Sizes vary according to the requirements of the products to be handled.



For spraying degreasing solvents.

"Oxidine" Black Finish for Cast Iron

Quoting from a letter sent out by Alrose Chemical Co., 180 Mill St., Cranston, R. I.:

"On cast iron, Oxidine CI provides an inexpensive and simple method of obtaining a dense black finish at low temperature. The Oxidine CI salts are added to water and heated to 212° F., after which the cast-iron parts are immersed for 5 to 10 minutes. One excellent and economical feature of this process is the fact that no special type cleaners are required, and the application can be made to a great variety of cast-iron parts with equal speed and facility."

Crystal Finishes in Black and Clear

In the 11th Edition of its Bulletin No. 8, Hilo Varnish Corp., 44 Stewart Ave., Brooklyn, N. Y., reveals information about Hilo Crystal Finishes. Excerpts:

Hilo Crystal is built to stand hard wear and abuse. It is tough; water, oil and gasoline proof, and able to withstand outdoor exposure, even sea air.

Black Crystal gives a satisfactory finish on rough, non-porous surfaces. In most cases a single coat is sufficient for a satisfactory job, but

QUALITY—

Important at all times, Vital in War

Quality is an essential ingredient of every Randolph product you buy.

It is also the keynote of the entire Randolph organization. Graduate Chemists represent a big percentage of our staff. Each of our foremen has learned the art through at least 15 years practical experience. Our ownership and management is exclusively by Chemists and Chemical Engineers.

Such an organization assures you of an accurate scientific formula for each item, together with the highest degree of uniform production.

We invite you to submit your urgent finishing problems by mail or wire.

RANDOLPH
FINISHING PRODUCTS CO.

Carlstadt **New Jersey**

when sharp edges cannot be completely hidden in one coat, an undercoat must be used.

Any color may be obtained in the crystal effect by applying a coat of clear crystal over a coat of enamel or lacquer, or other surface, of the desired color. The clear crystal finish is not adapted for use over white or pale colors. When bright metal and sharp bright edges cannot be completely hidden by one coat of crystal, a suitable undercoat should be first applied.

Porous surfaces must be thoroughly sealed so that satisfactory and uniform crystal effects can be obtained on them. Undercoats should be thoroughly hard before applying the crystal; if the undercoat is soft, the crystal will penetrate it and not crystallize properly.

Transfers may be applied on a crystal surface in the same way as they are put on a smooth surface. Where it is desired to protect transfers or striping, they should be applied first and the surface then covered with the clear crystal. Transfers show up clearly and small printing can be read through the clear crystal.

As soon as the articles are coated with Hilo Crystal, they should be placed in a closed room, compartment, chamber or oven and left at a temperature between 90° and 110° F. until the crystals are completely formed. (This takes from 20 to 45 minutes.) While the material will crystalize at room temperature, the action is quicker and more certain, and the crystals are more uniform and more perfect, at 110° F.

Leakproof Blow Gun

G. M. Mfg. Co., 216 N. Clinton St., Chicago, Ill., announces a "Leakproof" Air Blow Gun for blowing dust, dirt or lint from the surfaces of parts and products to be coated with paint or any other kind of coating. It is also useful for blowing out moisture or other entrapped liquid from crevices, seams or indentations in

Safe, useful, convenient, inexpensive.

parts to be cleaned or painted. Quoting from the company's circular:

"The G.M. air blow gun fits comfortably in the palm of your hand. It has button control air valve. Special composition washers prevent leakage.

"We can furnish any type nozzles—round, pointed, flat or 10-in. extension. Nozzles are interchangeable and renewable. When not in use, the air gun can be hung on a nail or small hook.

"Unless specified, an air nozzle with pointed tip and ¼-in. male connector will be furnished. A ¼-in. female pipe end, or reducing bushing is furnished upon request."

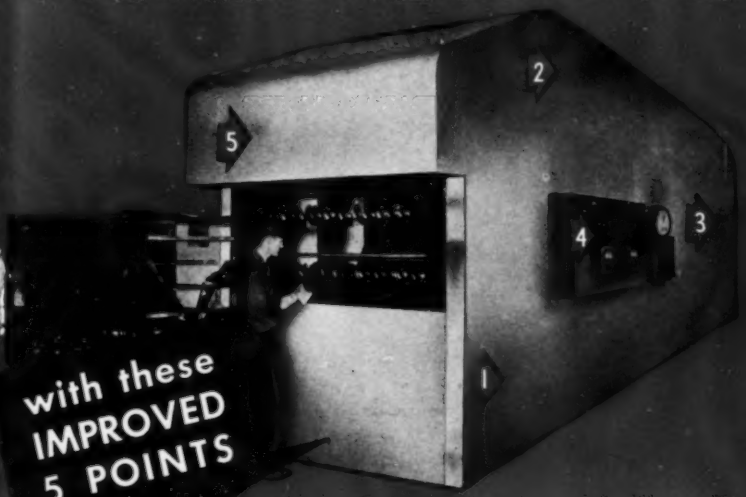
"Silco"—A Baked Finish for Metal

The Mitchell-Bradford Chemical Co., 2446 Main St., Stratford P. O., Bridgeport, Conn., announces a new coating called "Silco"—a sprayed-on vitreous coating. Inorganic in nature, it resists acids, mild alkalis, rust, corrosion, heat, impact, abrasion, etc., and is a dull finish which may be buffed to a beautiful egg-shell gloss.

"Silco" is sprayed, dried at 200° F. and baked at 350° F. in a convection type oven or by infra-red lamps. It is produced in black, Army drab and Navy gray (other colors after the War); withstands heat up to 1000° F. and is not affected by a 200-hour salt spray test; is one of the hardest possible finishes for application to rigid surfaces; is not flexible, although it will bend 30° without breaking.

Thickness of coating is .001-in. to

In the future you will get *better*
FINISH BAKING



with these IMPROVED 5 POINTS

To help meet tomorrow's difficult finish-baking requirements, Despatch is now preparing an entirely *new* line of finish baking ovens of revolutionary design and construction. Typical advantages include:

★ **FASTER BAKING** using a *new* system definitely superior to present baking methods. Ideal for all finishes.

★ **EASIER LOADING** with synchro-regulated devices applicable to all kinds of material. Saves labor and time.

★ **AUTOMATIC OPERATION** based on unique electronic control of all mechanical functions. Amazingly different!

★ **USES LESS FUEL** and reduces operating cost to new low level, an important factor in peacetime operation.

★ **SAVES FLOOR SPACE** through shortening conveyor lengths without reducing oven output.

DESPATCH
OVEN COMPANY MINNEAPOLIS

WRITE TODAY!
Let Despatch engineers lay out your new finishing department NOW!

FITTING OUT CLIPPER SH
ARM
SPRAY EQUI

the Pan American Way

DeVilbiss Spray Equipment helps get them into service in a hurry

• With battle fronts thousands of miles apart, our great new wartime lifelines must be kept open. That means faster, harder schedules for Pan American Clippers. It means too, that these giant planes must be finished better than ever before. There's little time now for painting between trips.

DeVilbiss Spray Guns that once finished these silver flying boats so brightly are now used to hide them in the sky with camouflage paint. With traditional DeVilbiss speed and uniformity, these ships receive the hard, rugged finish so necessary to protect them from bitter cold, equatorial heat and salty ocean spray.

DeVilbiss Equipment is used, too, for fast, quality work in caulking seams, cementing fabric parts, and other jobs on these Pan American Clippers.

Whether you are helping to build PT boats, planes, tanks, trucks, guns, bombs or helmets, DeVilbiss can provide you with modern spray systems that will speed your output, improve your workmanship and conserve your manpower on painting, coating and finishing operations.

THE DEVILBISS COMPANY • TOLEDO, OHIO

Canadian Plant: WINDSOR, ONTARIO

ARMY E NAVY

PROUD to have won the coveted Army-Navy "E" for excellence in war production, the men and women of DeVilbiss pledge to continue giving their all-out best—for Victory.

DEVILBISS SPRAY SYSTEMS

SPRAY EQUIPMENT • EXHAUST SYSTEMS • AIR COMPRESSORS • HOSE AND CONNECTIONS

EGYPTIAN

Victory "Spec" Finishes

As the world map changes and the black areas happily grow smaller, radical changes occur in war equipment.

Not yet are we ready to beat our swords into ploughshares. But tanks are giving way to locomotives, old contracts for certain parts are not being renewed; we are approaching the saturation point on instruments, small arms and camp equipment. Contracts are being let for needed new and different materials.

As the battle fronts change, so change the production fronts—and the finishing fronts.

New and revised Finish Specifications for wartime equipment will shortly be issued. And as usual EGYPTIAN will be ready to meet them!

The newly revised 1943 edition of our book "United States Government Specification Finishes" will soon be ready for distribution to those interested in wartime finishes. Reserve your copy today. Please address Dept. IF

THE EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER—NEW YORK, 20, N. Y.

EGYPTIAN
Superior **FINISHES**

.002-in. Surfaces are prepared either by sand blasting, or by alkali cleaning, acid pickling, washing and bonding, a simple operation cycle easily adaptable to large production. No priority is required.

Turco Deflocculator Aids Paint Recovery

A new and important use in the War Production Board's paint recovery program was discovered recently for a chemical compound, "Turco Deflocculator," according to the manufacturers, Turco Products, Inc., of Los Angeles and Chicago.

Paint overspray, collected from water-wash curtain spray booths which used circulating water treated with Turco Deflocculator, lent itself better to recovery and produced a recovered paint of the highest quality, according to test runs recently made at the Southern California area reclamation factory.

When Turco Deflocculator was originally designed as a chemical treatment for circulating water systems in paint spray booths, its sole purpose was to prevent breaks in the water curtain by emulsifying oil and resinous vehicles and dispersing pigments, so they could not deposit on the metal walls of the spray booth.

Now, without changing the method or directions for using the compound, Turco Deflocculator serves a double duty. At the same time that the dilute solution of the compound (an initial charge of 1-3 oz. to the gallon of water, with further additions of 1-6 oz. per gallon every four hours) is acting to prevent breaks in the water curtain and maintaining an unbroken sheet, it also serves as a chemical recovery agent. By preventing the formation of scum on the top of tanks, Turco Deflocculator aids in producing a higher quality of sludge which stays smoother and is dispersed easier after reclaiming.

Hand spray-painting at Vultee Aircraft, Inc., showing a smooth, unbroken water curtain. Treated with Turco Deflocculator to prevent breaks in the watershed—and, incidentally, improve the quality of recovered paint.

Lubricates Overhead Conveyors

A new device for the automatic application of controlled volumes of lubricants to the bearing of conveyor trolley wheels is announced by the J. N. Fauver Co. Inc., Detroit, Mich. Its use is said to be particularly important where conveyors pass through kilns, ovens, dryers and other hot zones.

The lubricator is mounted on the trolley rail so that it serves simultaneously the bearings of each pair of wheels, every time they pass this point. It requires no independent power. It is driven by the travel of the conveyor itself—starts and stops with the motion of the conveyor chain.

As the trolley wheel approaches the lubricator the hub engages the sleeve of one of five pumping units which is thus automatically brought in contact with the wheel bearing. Continued rotation of the lubricator forces the pumping unit inwards, delivering a measured quantity of lubricant through the fitting to the wheel bearings. This operation is performed on the bearings of both

wheels of a pair at the same time and is repeated on all other wheels as they pass under the lubricator. Reservoirs of 5-lb. or 12-lb. capacity are standard equipment.

Advantages claimed for this method of lubricating trolley wheels include: Optional use of hard oil, elimination of drip and consequent work spoilage, automatic operation, no external power required, maintenance costs reduced, servicing time diminished.

Reanite Process Joins Any Materials

A new bonding process that unites metals with a bond stronger than riveting or spot welding, and that joins rubber, synthetic rubber, plastics, leather or wood, to metal, or to each other with a bond stronger than the materials themselves, is announced by The U. S. Stoneware Co., Akron, Ohio, manufacturers of Tygon plastic materials and corrosion resistant industrial equipment.

Already in use for vital war applications, the new method (known as the Reanite Bonding Process) is expected to find thousands of peacetime uses. Engineers have long sought a foolproof method of uniting dissimilar materials in order to utilize the physical properties of each—for example, to combine the lightness and insulating value of plywood with the permanence, strength and beauty of stainless steel.

Such fabrication is an actuality with the Reanite Process. Thin sheets of stainless steel, or aluminum, can be bonded to Tygon impregnated plywood to form light weight, fireproof, waterproof structural assemblies for pre-fabricated housing units, boats, airplane or motor car assemblies, kitchen cabinets, refrigerators, furniture, etc.

Repeated laboratory and field tests indicate that it would require a direct pull of 30,000-lbs. to separate two 6-in. square pieces of steel bonded with Reanite. On standard tensile testing machines, Reanite develops a bond (metal to metal) ranging from 1,000 lbs. per square inch to as high as 3,000 lbs. per square inch. The bond developed between rubber and metal runs anywhere from 900 lbs., to as high as 1,500 lbs. per square inch. On repeated tests of bonds formed between natural rubber, synthetic rubber, plastics, leather and wood, the materials themselves gave way before the bond.

Application of the Reanite Process is simple. The surfaces to be joined are brushed, sprayed or dipped with Reanite. After drying, mild heat and pressure are applied.

The Reanite joint is unaffected by fresh or salt water, is non-corrosive to metals, possesses excellent corrosion-resistance in itself, and high dielectric strength.

Electrically Heated Airbrush

For quickly heating certain materials (including waxes, glue, etc.) to be sprayed, Paasche Airbrush Co., 1909 Diversey Parkway, Chicago, Ill., has developed an electrically-heated airbrush which is identified as Type F974.

Heat is thermostatically controlled from a low of 180° F. to a medium of 260° F. and a high of 320° F. Many new materials—now in the process of development—will be perfected by use of this electrically-heated airbrush.

It is easy to operate. Any size and type of spray can be easily ob-

For spraying heated materials.

If One Part of the Finishing Picture is Missing . . .

Scheduling a Plywood Aircraft Finish to include all the essential qualities is like assembling a jigsaw puzzle. If one quality is missing, the whole is incomplete. A system of finishing must possess all the essential qualities to an adequate degree to give satisfactory, lasting protection. TUF-ON systems are complete. They not only include all essential qualities but the wide range of TUF-ON coatings permits scheduling to meet any desired quality emphasis. Write and tell us of your requirements.

TUF-ON
PLYWOOD FINISHES

INDUSTRIAL RESEARCH DIV. OF WIPE-ON CORP., 105 HUDSON ST., N. Y. C.

tained by turning the calibrated dial control. Requires only 10 to 30-lbs. air pressure for maximum efficiency. Materials may be applied wet or dry, as wanted.

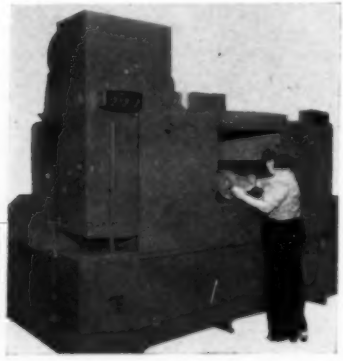
The airbrush has calibrated control of fan spray, and its handle is insulated and air cooled. The new type cup has a 3⅝-in. opening and removable snap-on cover to make filling and cleaning easy.

Metal Washing Machine

The Industrial Washing Machine Corp., New Brunswick, N. J., announces a segmented-cabinet washing machine which includes a large-mesh turntable (or special fixtures depending upon the nature of the work to be cleaned) that rotates slowly. Surrounding the turntable is the housing which is portioned off into various combinations of washing, rinsing (or slushing) and drying.

Parts to be cleaned are placed either directly on the mesh or on the fixtures. As the turntable rotates it carries the work through the cleaning operations and returns it to the same operator who does the loading.

Production ranges from 1½ to 7½ sq. ft. of work per minute.



Only one operator is needed. Any cleaning detergents now on the market can be used in this machine.

DuPont Floor Wax

A self-polishing type of floor wax, both slip-retardant and water-resistant, is announced by the Finishes Division of E. I. duPont de Nemours & Co., Wilmington, Dela.

Designed as a durable, protective glossy coating for linoleum, asphalt tile, rubber, finished and unfinished wooden floors in homes, offices and institutions, Du Pont Self-Polishing Wax has been extensively tested.

A high percentage of natural Carnauba wax combined with a special emulsifying agent contributes qualities of unusual wear-ability and resistance to water. The new product is easily spread with applicator, mop or cloth. No rubbing is required. The laboratory-balanced film dries in 20 minutes.

The slip-retardant feature has definite value as a safety measure. A high degree of resistance to water reduces the frequency of re-waxing.

Dehydrator Prevents Corrosion

A simple, quick technique for packaging guns, engines, planes and machinery to prevent rusting and corrosion damage during the weeks and months that these metal war implements lie in freighter holds and dockyards, has been made possible by the development of a chemical that not only can suck half its weight in moisture out of damp air, but which also signals workmen when the humidity inside a war package jumps above a certain point. The chemical is granular silica gel made by the Permutit Co., 330 West 42nd St., New York, N. Y., who report that it is revolutionizing the packaging of war supplies.

Previous to World War II, metal war goods were coated or "slushed" with heavy grease to keep moisure off. The grease-coated parts then were de-greased in solvent or vapor-baths before assembly—which delayed putting munitions to work at the front and multiplied the work of harassed mechanics.

Continuously supplying finishes to Wright Field since 1935.

Guardsman
AVIATION FINISHES

Speed Production of CG-4A Gliders

These comparison figures show the job Guardsman Finish has done to cut operations — reduce time and labor hours — save critical materials in finish of the mammoth CG-4A troop-carrying gliders for a large Mid-West manufacturer.*

	Old Method	Guardsman Way
Number of Operations	Thirteen	Seven
Man Hours of Labor .	24 hrs., 56 min.	8 hrs., 32 min.
Elapsed Time for Finish	29 hrs., 48 min.	2 hrs., 32 min.
Material Consumed .	29½ gals.	14 gals.

Producing a complete camouflaged finish, Army inspectors on the job advised factory officials that Guardsman finishes and Guardsman methods produced the most satisfactory results ever turned out by this plant.

*Name of manufacturer on request.

What GUARDSMAN is doing for others, it can do for you.

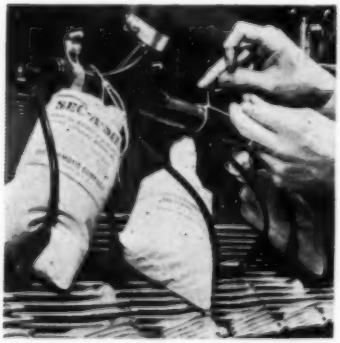
Exclusively Manufactured by

GRAND RAPIDS
VARNISH CORPORATION
GRAND RAPIDS · MICHIGAN

With silica gel this time-consuming de-greasing is eliminated and equipment arrives ready for use. The chemical protects metal parts by keeping the humidity of the entire package below 20%—at which point corrosion cannot take place. Silica gel granules absorb half their weight of water by physical action and do not swell, dissolve, or have any chemical reaction during the absorbing process.

By examining a humidity indicator in each package—a card containing cobalt impregnated silica gel which changes color as the air within the package changes in humidity—inspectors can tell when the silica gel has absorbed its capacity of the moisture in the package, or if the moisture-proof wrapper is leaking. When the air is dry the cobalt granules are a deep blue, but as humidity in the package increases, the granules change to violet through pink to white.

In corrosion-proofing an aircraft engine, bags of silica gel are tied to each cylinder and placed in other strategic spots, and the humidity indicator card is attached to one end of the engine. A moisure-proof bag is drawn over the engine before crating. A transparent plastic window in the shipping box permits inspectors to check the indicator card without disturbing the wrap. Guns and other ordnance items are similarly sealed and crated.



Bags of silica gel tied to each cylinder suck up corrosive moisture in the air, keeping humidity in the tightly-sealed package within the 20% mark, below which corrosion cannot occur.

Dunking and Dryer Basket

The Curran Corp., Malden, Mass., manufacturers of the famous cleaning compounds announces a newly patented dunking and dryer basket made entirely from scrap metal.

It is included with a 5-gallon steel shipping pail with a removable top containing the company's newly announced "Carbon Met," substitute for carbon tetrachloride.

Made of scrap; no high priority asked.

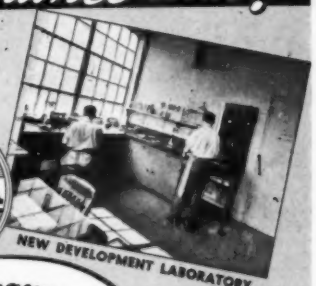
The bench kit is shipped complete and is easy to use. All that is necessary is to place the parts to be cleaned in the dunking basket and dip it into volatile Carbon Met.

On withdrawing the dunking basket, the spring-like clips attach themselves to the edge of the container, allowing excess solvent to drain back into the pail. Within a very few minutes the parts in the basket are completely dry and clean.

Only Extra Performance wins!

RESEARCH LABORATORY

ALAKA



NEW DEVELOPMENT LABORATORY

Extra Performance

SERVING CONTRACTORS of

- U. S. Army Air Corps
- U. S. Army Chemical Warfare Service
- U. S. Army Corps of Engineers
- U. S. Army Quartermaster Corps
- U. S. Army Ordnance Dept.
- U. S. Army Signal Corps
- U. S. Army Medical Corps

MONTGOMERY'S 8th ARMY

succeeded primarily by

EXTRA PERFORMANCE

He took the 'materials as specified' . . . the tanks, the planes, and the infantry. Then he added tactics, maneuverability, timing, coordination and surprise . . and he WON.

The manufacturer of

U. S. GOVERNMENT SPECIFICATION FINISHES

is in very much the same position. The specification tells him what to combine and what "tests of strength" are required. Having met that, it is his ingenuity, skill, knowledge and experience that makes it possible for him to produce finishes which surpass the rigid military requirements.

ALAKA

does just that . . . adds that extra quality that performs "in action" just a little better . . . a little faster . . . a little more economically . . . a little surer.

May we show you how this Extra Performance can help you?

Match notes with our Technical Department.

- New, Complete
- Up to the minute
- Catalogue of
- U. S. Government
- Specification Finishes

Send for your copy

SERVING CONTRACTORS of

- U. S. Navy
- U. S. Marine Corps
- U. S. Navy Bureau of Aeronautics
- U. S. Coast Guard
- U. S. Navy Bureau of Ordnance
- U. S. Navy Bureau of Supplies

CONTROL LABORATORY

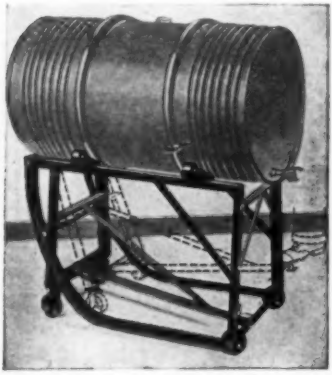
EXPOSURE FARM

LACQUER & CHEMICAL CORPORATION

214-220 FORTIETH STREET • BROOKLYN 32, N. Y.

Safety Cradles for Drums and Barrels

For moving, elevating or changing the position of paint drums, an improved safety cradle is announced by Industrial Products Co., 2820 N. 4th St., Philadelphia, Penna. One of



Enables one man to handle loaded drums of paint with ease and safety.

these cradles provides for the safe and easy handling of drums and barrels; it eliminates waste of liquids, and saves time.

Rotating wheels at the top of frame allow drums and barrels to be easily and quickly put into position for removing part of liquid, or for draining. Wheels and swivel casters are large in diameter, heavy-duty type, so that the unit may be moved to any desired location with comparative ease. The cradle is strongly constructed throughout to give long satisfactory service.

Fluorescent Fixture Stands Vibration

Curtis Lighting, Inc., 6135 W. 65th St., Chicago 38, Ill., announces a new fluorescent lighting fixture that is resistant to shock, vibration and oscillation. It is suitable for vessels such as Coast Guard Cutters, etc., and may be used in industrial plants where these factors must be taken into consideration.

The unit employs two 15-watt fluorescent lamps. The tulamp ballast, lampholders, starter sockets and special terminal block can be removed from the housing as a complete unit, without dismounting the fixture from the ceiling or from the mounting brackets. The Louverplas shield used in the unit gives well diffused illumination with effective lamp concealment and eliminates objectionable brightness from normal viewing angles.

The housing has a rust-resistant plated coat, one coat of zinc chromate primer and one coat of battleship gray enamel. Interior is finished white enamel.

Interchemical Moves to Empire State Building

Interchemical Corporation and the administrative offices of several operating divisions and subsidiaries moved to the 16th floor of the Empire State Building on August 1st. Approximately 30,000-sq. ft. have been leased.

Interchemical Corporation and its operating divisions and subsidiaries manufacture chemical coatings for protection, decoration and utility—printing, gravure and lithographic inks, industrial finishes, paints, lacquers, enamels, textile colors and allied products.

For the past 13 years Interchemical's offices have been located at 75 Varick St., where they were originally established in order to have certain technical facilities at the same location. Expansion of the facilities of the Corporation has transferred these facilities elsewhere so that it is no longer necessary that the administrative offices be located in the same building as the manufacturing and service departments.

The new location, which will house the administrative offices of Interchemical Corp., International Printing Ink Division, In-Tag Division, Ault & Wiborg Corp., and the Export Division, has a number of advantages for the tenant. It will be more convenient for many of their customers and the means of transportation used by a majority of their employes are more readily accessible. It is also closer to their main Research Laboratories in New York and to many of the factories and branch offices of the operating divisions and subsidiaries located in the metropolitan area.

Another Production Coating Problem—Solved by Paasche

To provide a method of applying colloidal graphite compounds to bomb fuse parts, that would overcome the defects of former methods, Paasche developed this new automatic air-coating unit with Infra-Ray pre-heating oven, now in successful operation in many plants.

Bomb fuse gears or other parts are placed on specially designed holding fixtures and carried through the pre-heating oven, emerging at a temperature of approximately 250° F. They then pass in front of automatic air-brushes which follow the work and apply a remarkably uniform coating of colloidal graphite—free from the tears and runs so prevalent in other methods. The graphite dries immediately and is hard enough to permit handling for assembly, yet retains its excellent lubricating qualities.

Write for further information and literature on Paasche Manual and Automatic Airpainting Equipment. Paasche Engineers will be glad to help you to solve any finishing problem.

PAASCHE AIRBRUSH CO., 1917 Diversey Parkway, Chicago, Illinois

Paasche AIRPAINTING EQUIPMENT

Manual, automatic and special airpainting equipment, airfinishing booths, pressure regulators, airconditioners for compressed air lines, air dusters and strippers.

Questions and Answers

Coating Wire Rings

It is necessary that we have a tumbler, or other quick economical method, for putting dull black lacquer on large quantities of small D-rings made of wire. Chemical Warfare Contract. Can you advise source or give suggestions? —S. Mfg. Co.

An excellent machine for doing this work, we believe, is a closed combination dipping-whirling machine, such as you have seen advertised in some issues of this magazine. The cleaned items to be coated are dumped loosely into a wire mesh basket which is then placed in an upright cylindrical container of the machine. The mechanism of the machine is such that the basket of parts can be lowered to immerse them in the coating material. Then the basket is raised and rotated rapidly to throw off the excess paint. During these operations the cylindrical container is closed. After the excess material is whirled off and drains back into the container, the basket of coated items is lifted out and dumped on a tray to dry.

Whether you can get early delivery on one of these machines, we are not prepared to say. We know they have been and are very much in demand for coating small parts. In a letter we are giving you the names and addresses of manufacturers. We are also giving you the names and addresses of manufacturers of tumbling barrels.

If you cannot get early delivery on a suitable machine, you might build a small tumbling barrel to use in this emergency.

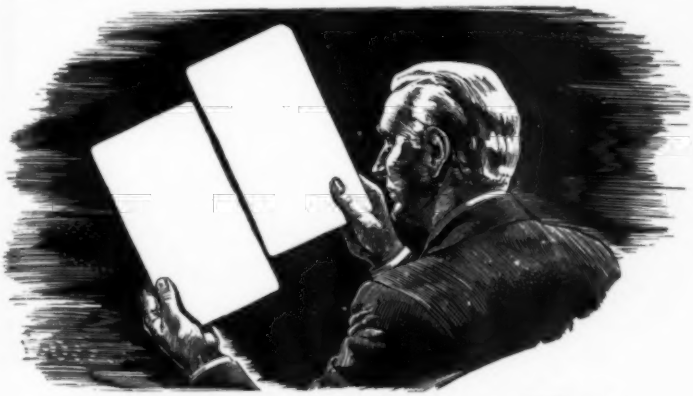
Another method of coating these small wire rings is to place them in a wire mesh basket and dip them in a tank of material or flow-coat them. Allow the excess material to drain off and then dump the coated rings on a wire mesh tray where you can spread them out to dry. The tray might need to be shaken at intervals to prevent touching rings from sticking together as the lacquer dries.

Some details about any method you adopt will have to be worked out more or less by experimenting in your own paint room.—ED.

What Catches and Holds Least Dust

May we ask you if you have published anything in your columns regarding finishing of metal surfaces to prevent the adherence of dust? We are particularly interested in the use of such finishes on ventilation ducts to prevent the accumulation of dust. We are told that if these finishes are properly mixed and applied it is possible to obtain a surface that will not be porous and will give the surface a permanent smoothness.—M. W. S.

We do not recall having published anything on this subject. However, from our personal ex-



A Continuing Service That Insures Constant Improvement

If you are turning to war production, Berry Brothers Industrial Paint Service will help you in four ways:

1. Consult with you during the bid period, concerning finishing materials, prices, application methods, and equipment requirements;

2. Assist you in getting production started;

3. Call back frequently to suggest application methods for greatest efficiency and lowest finishing room cost;

4. Continue formulae studies when no definite specifications are available.

Berry Brothers industrial paint representatives have the necessary technical knowledge of paint products and finishing room methods to insure you a continuing service that means constant product improvement.

A letter to our nearest office will bring an experienced paint man to tell you how your finishing system might be improved.

BERRY BROTHERS, Inc.

Quality Finishes Since 1858

INDUSTRIAL VARNISHES • ENAMELS • LACQUERS

DETROIT, MICHIGAN • WALKERVILLE, ONTARIO

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perience and observation, a smooth surface that is coated with brushed-on aluminum paint attracts and holds less dust or dirt than any other type of coating we have used. Perhaps the leafing of the thin flakes of aluminum, in aluminum paint, may present the nonporous type of surface you desire. Others to whom we have referred your problem suggest clear lacquer, baked-on varnish or baked clear synthetic coating. Perhaps some of our readers have some comment or suggestions to offer.—ED.

Face Veneer Trouble

As manufacturers of veneered case goods, we are supplied now with half-round veneer, as the sliced veneer is practically out of the market.

In our veneer department, where we take the face veneers, there is one sheet of face veneer and the second sheet to match is reversed in order to match the veneer of walnut of the first sheet. After the cases are assembled, we have a special glue size applied on the surfaces, and after sanding the cases are forwarded to the finishing department.

At the finishing department we apply the filler, and after the sanding operation we apply the first coat of varnish. Up to the filling and shellac operations, the surfaces are A-1. However, after applying the first coat of varnish, all of the sheets that have been reversed to match the figure of walnut are developing blisters. The consequence is that we have to resand all of these reversed sheets before applying the second coat of varnish. Naturally, this sanding of the reversed sheets means quite an expense to us, as we manufacture about 300 bedroom suites per week.

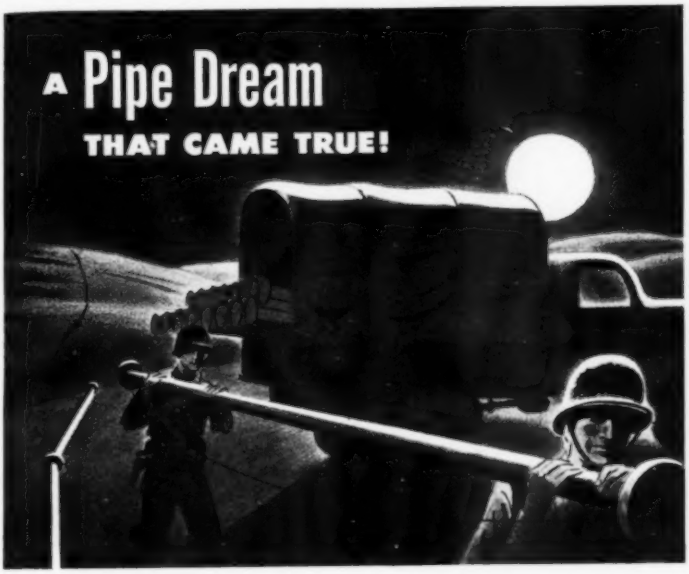
Could you give us some information so we could escape this extra sanding on blistered sheets or reversed sheets, as mentioned in this letter? Any information that could help us to correct this situation would be highly appreciated.—V. Furn. Co. (Canada).

(Reply by Liquafill Mfg. Co.)

After studying your problem carefully we feel that it can be solved by treating the half-round face veneers, before laying, by what we call our hot-plate redrier method. In this method the face veneers, as they come from the crate, are coated on both sides with Liquafill Treating Solution prepared with hide glue and Glue-Rite No. 20, in the manner prescribed in a bulletin which we are sending you. The treated veneers are air-dried between sticks, then flattened between hot plates. The flattened treated face veneers can then be used either single-ply or two-plied as desired. This method will glue down the shells, shakes, and other imperfections in the veneers and prevent the development of blisters in the finished product. The method has been used successfully for the past 12 years.

Water-Wash Spray Booth Trouble

We are spraying 50 gallons per 16-hour day of half PXS-979 Government specification black lacquer and half standard thinner, in a modern water-wash spray booth. We have been unable to knock down the solid particles by means of the spray chambers, so that it is being vented outside and causing serious trouble of con-



AMERICAN ingenuity rebelled at the difficulties of refueling mechanized military equipment via tank trucks. And so the portable pipe line was born, to follow motorized divisions, with unbelievable speed, across miles of desert and right into the combat areas. Camouflaging the pipe line meant paint—a specially formulated Arco infra-red reflecting paint—which would withstand the fierce heat of desert days and the chilling cold of desert nights.

Thus once again the Arco Research Laboratories developed a functional paint that solved a specific problem.

Paints for Industry THE ARCO CO.
CLEVELAND, OHIO • LOS ANGELES, CALIF.

tamination in our other buildings.

We have tried different kinds of compounds in the water and have reduced the velocity going through the booth, but have been unable to prevent clouds of the overspray passing right through the water-wash and out into the open air.

Could you refer us to any concern that would be in a position to make recommendations?—D. S.

First, take up your problem with the concern that installed your spray booth. A qualified engineer, on the job, can check all conditions and factors involved, and prescribe a remedy for the trouble, whereas, someone answering from a distance, without seeing the installation, is groping in the dark.

With the few facts you have given, here are a few causes, any one of which might help cause your trouble

1) A worn pump impeller, resulting in loss of sufficient head pressure and lack of water volume required. Motor speed too slow.

2) Paint accumulation in suction and header pipe.

3) Nozzle or orifices partly plugged.

4) Eliminator baffles not clean, or too much paint accumulated on them.

5) Eliminator baffles not in place, bent or removed.

6) Exhaust fan belt loose and slipping.

7) Exhaust fan motor speed too slow (should be an 1800-rpm.)

8) Too long an exhaust stack or too many elbows causing high static pressure.

9) Weather-cap restriction.

10) Design of water chamber.

11) Pump capacity to water storage capacity too low. Rates should be no less than two gallons of water storage to each gallon pumped. Best results are obtained with higher ratios.

12) Water headers installed improperly. The angle of the nozzles or orifices unsuitable—in relation to the restricted area.

Another point is that 50 gallons of PXS-979 black lacquer in 16 hours is not much material to be handled in any average-size spray booth. Even if it were only a 3-ft. front booth, this would be only about one gallon of lacquer per foot per hour.

Lacquer is easily handled, as compared to many of the synthetic enamels, cements, oil paints and asphalt-base materials that use long oils and high-boiling mineral spirits for reducing compounds. These, as you probably know, rapidly kill the alkalinity of the water, while the solvents used in the manufacture and reduction of lacquer for spraying hardly affect the alkalinity of the water. In fact, in many cases, where only lacquer is sprayed in a water-wash booth, plain water is used; no alkali compounds are included.

An over-compounded water will emulsify the lacquer. When emulsified, the lacquer could pass through the booth in the humidified air (98% relative humidity in the stack) and pass to the outside.

A check on each of the items just enumerated might or might not clear the situation, but if the booth is of some standard manufacture, the trouble can be discovered and corrected.—C. C.

Polymerization, the process by which many modern finishing materials cure, is defined as joining together of a number of identical molecules to form a substance differing from the original molecules.

Infra-Red
VICTORY
TUNNEL
dries Paint
on U.S. Tanks

360 Times Faster

Press Association, Inc.

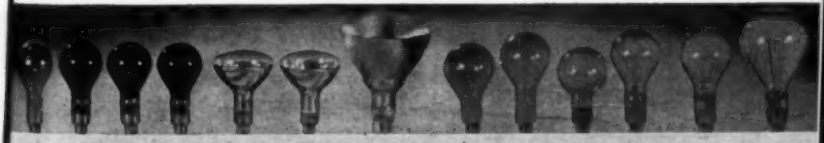
Driver doesn't even leave seat as freshly painted tank bakes dry in 4 minutes (instead of 24 hours) by passing through this tunnel of Infra-Red Lamps at U. S. Army Ordnance Depot, Chester, Pa.

Infra-Red is hastening victory by saving up to 95% *in finishing time* on vital war materiel. Thanks to Infra-Red, tanks, jeeps, cannon and other fighting machines are now getting into action infinitely faster and are protected by *more lasting and uniform finishes* than were ever possible by old air-drying methods.

Exhaustive tests by industrial leaders have led to the adoption of Birdseye Infra-Red Heat Lamps by such outstanding wartime producers as Allis-Chalmers, Bulldog Electric, Curtiss-Wright, Dow Chemical, Square-D and many others.

The Birdseye line now offers a wide selection of rugged tungsten-filament Infra-Red Heat Lamps ideally suited to various finishing purposes. There are thirteen types and sizes, all with a 6000-hour average life. Write today for Booklet N-8.

BIRDSEYE INFRA-RED HEAT LAMPS



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Manufacturers of Wabash Photolamps and Superlite Light Conditioning Bulbs

Booklets Catalogs Circulars

Recording Thermometers

Wheelco Instruments Co., Harrison & Peoria Sts., Chicago, Ill., has issued five new bulletins describing its complete line of industrial indicating, recording and control thermometers.

Metal Cleaning Booklet

Illustrated information about how to solve precision cleaning problems (clean, rinse, polish, dry) is revealed in a new booklet released by L. & R. Mfg. Co., 54 Clinton St., Newark, New Jersey.

Adhesives for Labeling and Packaging

A new folder describes the most popular adhesives developed by the Paisley Laboratories, Inc. (1770 Canalport Ave., Chicago, Ill.) for labeling, wrapping, sealing and other packaging operations in all industries.

How to Clean Safety Equipment, Respirators

A Special Service Report has been prepared by the Technical Engineering Laboratory of Oakite Products, Inc., 22 Thames St., New York, N. Y.

Based on their successful utilization in many plants, the Oakite materials and methods discussed in this Service Report are recommended for fast, thorough removal of dust, dirt, grease, oil, paint and other deposits from respirators, goggles, and various types of safety and protective devices, appliances or parts such as eye and face shields, visors, deflector guards, helmets, hood glass, etc.

Widely recognized is the fact that regular inspection and maintenance of safety equipment materially extends its life and use. Beyond that, it gives assurance of greater protection to workers who wear it. With today's tremendous rise in activity in industrial establishments, care and maintenance of respirators, goggles, shields and other protective devices are more important than ever.

Instruction Folder on Pipe Fittings

A continuing increase in new users of Ermeto safety tube, and pipe fittings manufactured by The Weatherhead Co., Cleveland, Ohio, has brought the release of a special instruction folder detailing installation procedure for the fittings. Copies of the folder are being released in the United States and Canada through Weatherhead offices and plants.

The folder has four pages printed in red and black, and presents the instructions in a clear concise manner, with photographs to illustrate each step of the assembly and disassembly of the fittings. An explanation of the way Ermeto works is included. Copies can be obtained by writing to The Weatherhead Co., 300 E. 131 St., Cleveland, Ohio.

Ermeto safety fittings, which eliminate flaring, welding, threading and soldering are the only fittings of their type manufactured in this country. Weatherhead started their manufacture in 1939 under an exclusive licensing agreement.

Booklet on Radiant Heat Drying Lamps

For drying, baking and heating processes, radiant-heat drying lamps are recommended in a new illustrated booklet announced by Westinghouse Electric & Mfg. Co.

The 12-page booklet tells what radiant heat is, and discusses its merits, speed, low initial and maintenance cost, flexibility and ease of control, reduced space requirements. Besides discussing the design and performance characteristics of the drying lamp, the new booklet takes up the design of radiant-heat installations, the arrangement and spacing of equipment, and electrical circuit design. Specific data is given for the three general classes of applications for industrial purposes: namely, evaporation of water or other solvents, paint drying, and increasing temper-

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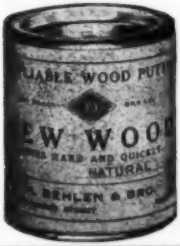
PLIABLE WOOD, REPAIRING AGENT

Workable, Dough-Like

Fills Holes and Indentations



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TAKES *Stain, Varnish, Lacquer or Enamel*

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For Padding on New and Used Finishes of Lacquer, Varnish or Shellac

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Brush and Spray Clear Lacquer which accentuates Natural Wood Markings

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DIVISION OF
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Drawing Materials

EVERYTHING FOR THE DRAFTING ROOM

10-12 CHRISTOPHER STREET NEW YORK N.Y.

atures of materials to facilitate manufacturing processes. Formulas are stated for determining the wattage required for each application. Illustrations show radiant heat drying lamps installed.

A copy of booklet A-3817 may be secured from the Westinghouse Lamp Division, Bloomfield, N. J.

Emergency War Agencies

A new book entitled, "Handbook of Emergency War Agencies", prepared by the Office of War Information, is a guide to Federal agencies all of whose present functions are devoted to the war activities. It does not include the activities of the agencies established for other purposes, even though much of their work today has been integrated with war program. The handbook is designed to help the public reach the services it needs within the emergency war agencies.

Copies of the handbook may be obtained by writing to Superintendent of Documents, Government Printing Office, Washington, D. C. Price 20 cents each.

Fluorescent Fixture Catalog

In Sylvania's new Fluorescent Fixture Catalog, emphasis is placed on simplification, standardization, and adaptability of the new Sylvania line of non-metallic reflectors, especially designed for industry. Termed the "Fixture of the Future," three sizes of industrial fixtures are made available. They can be used either as single units or in continuous rows.

In the new catalog, Sylvania stresses easier installation and speedier maintenance, because of practical basic engineering design.

Sylvania states that the new line described in the catalog not only meets WPB requirements, but actually has a higher efficiency than that of pre-war, porcelain-enameled metal in conventional contours. It also has the additional advantage of light weight. The "Fixture of the Future" line carries Underwriters' Laboratories approval and Sylvania's own standard guarantee.

Oven Bulletin

"Blueprint for Industry" is the name of an unusual 18-page booklet of engineering information on high-production convection heated ovens for batch and continuous heating processes used in armament production.

Handsomely printed on heavy stock, this book is illustrated entirely by reproductions of blueprints showing typical installations of oven and materials handling equipment. It is Part II of a series.

Starting with a convection-heated box type or single compartment oven, the printed descriptions go on to cover multiple compartment ovens, continuous ovens and furnaces, multi-pass conveyor ovens for preheating, double-dipping, baking and cooling, and a number of complete oven-materials-handling systems.

Included is a continuous system for pickling, rinsing, scrubbing, drying, paint dipping and baking of steel sheets.

On the last two pages of the book are printed engineering data, including the density, weight and volume of gases, the specific heat and density of various materials, volume and weight of air, and various fan law problems.

The book is issued by the Industrial Oven Engineering Co., 11621 Detroit Ave., Cleveland, Ohio.

Metal Washing Machine Book

A recently published 4-page illustrated booklet, Bulletin No. 19, describes the new American Tabl-Spray Metal Washing Machine manufactured by American Foundry Equipment Co., 555 S. Byrkit St., Mishawaka, Ind.

New Protective Coating for Corrosive Conditions

A new 12-page data bulletin summarizes the unusual properties of Ucilon*, a new surface coating material that stands up under many of industry's most corrosive service conditions. Because Ucilon is formulated with new and improved synthetic resins, it produces tough, flexible coatings that are resistant to organic and inorganic acids, alkalies, salts, alcohol, gasoline, oils, greases and moisture; it also has excellent dielectric strength and can be readily applied to wood, metal, concrete and other surfaces by brushing, spraying or dipping. Ucilon F is a special formulation for use in contact with food products.

Although the special war applications of Ucilon cannot be revealed, this booklet illustrates many essential uses and will suggest countless more where corrosion is a costly and time-consuming problem—or where Ucilon can be used in place of more critical materials. Copies available on request to United Chromium, Inc., 51 E. 42nd St., New York, N. Y., or 2751 Jefferson Ave., Detroit, Mich.

*Trade Mark Reg. U. S. Pat. Off.

TO HIT 'EM H-A-R-D-E-R

1943 promises to be the hardest year this country has ever faced. Every effort, and every dollar of national income not absolutely needed for existence, should go into war work and War Bonds.

In the Pay Roll Savings Plan, America finds a double-barreled weapon—for fighting power today, buying power tomorrow.

You've undoubtedly got a Pay Roll Savings Plan in your own plant. But how long is it since you last checked up on its progress? *If it now shows only about 10% of the gross payroll going into War Bonds, it needs jacking up!*

This is a *continuing* effort—and it needs *continual* attention and *continual* stimulation to get fullest results.

You can well afford to give this matter your close personal attention! Actual case histories prove that a successful Pay Roll Savings Plan gives labor and management a common interest that results in better understanding. Misunderstandings and wage disputes becomes fewer. Production usually increases, and company spirit soars. And it goes without saying that workers with substantial savings are usually far more satisfied and more dependable.

For sound business economy, now and when the war is won, check up on your Pay Roll Savings Plan, *today!*

You've done your bit Now do your best!

This space is a contribution to victory today and sound business tomorrow by

INDUSTRIAL FINISHING Magazine

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metalworking, woodworking and miscellaneous industrial plants where production finishing is a major operation in parts and products manufacture.

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Editorial

Wood Replaces 5,000,000 Tons of Metal in '43

According to Joseph L. Stearns, of the National Lumber Mfr's Ass'n., "Conversion to wood of products previously manufactured of metal will release to war service more than 5,000,000 tons of metal during 1943. This figure (an estimate by technicians of the National Lumber Mfrs. Ass'n., Washington, D. C.), is compiled from reports of WPB, Army, Navy, Maritime Commission, Forest Service, Census Bureau, and industrial concerns.

Quoting Mr. Stearns, further: "On the average, it is possible to save one ton of steel by the use of 1000 board feet of lumber. On some items, such as cast iron, it is possible to save more; on others, such as sheet metal, the saving is smaller.

"The volume of saving is comparable to the 1942 figure, but there is a definite difference in the use of the material. Last year wood went to bat for metal in construction. Now the cantonment building program, the shipyards, and the factories are all but complete. The industrial effort has shifted from construction to production. Wood is being used this year to replace metal in a long list of civilian products that have been largely curtailed or discontinued as well as being diverted into essential war uses other than construction.

"Manufacture of some 2200 metal items has been stopped entirely. Many of these are still being produced—in wood. Wood is performing some jobs it never has done before, but in many instances the use of wood is not new, although its use is new in modern industrial practice. For example, when the manufacture of metal furniture was stopped, that portion of the furniture industry reverted to wood . . . The shift back to wood furniture was not too difficult, because the bulk of metal had been finished to simulate wood grain anyhow.

"The variety of consumer goods formerly made of metal but now being made of wood, in whole or

in part, is surprising. It includes aircraft, refrigerators, lines of metal furniture, caskets and vaults, mirror and picture frames, certain farm implements, beauty-shop equipment, children's vehicles, athletic equipment, lawn mowers, slot vending machines, radios, carpet sweepers, weather strip, tanks, signs, toys, ladies' purses, partitions, lamps and jelly molds."

In order for wood to give satisfactory service in some of these products, special coatings and new techniques of applying them had to be developed. Progress along these lines was forced to take many different turns because some of the materials well suited for the work are no longer available in adequate quantities due to the war. Manufacturers of finishing materials and others deserve much credit for having developed protective coating materials and methods that make possible the substitution of wood for metal in so many different essential products.

No Smoking—No Fire

★ *I am submitting the following for your approval, with the hope that it will be a timely warning to many readers of your valuable and interesting magazine. All industry is now keyed up to high gear, and is taxing the strength and thoughts of every available worker throughout the country. I have noticed a laxity on the part of some workers regarding "Smoking Rules," and I think that it would be a good idea to call attention to this condition. Therefore may we call our warning*

"Fire and Smoke"

I am wondering just what kind of language one can use in order to impress upon the minds of people the serious danger of fire? It seems that there are altogether too many who disregard the real meaning of this.

From time to time I have noticed men who will continue to smoke in and around the finishing rooms where all sorts of highly inflammable materials are stored, spilled and in use. It makes no difference whether it is paint, lacquer, varnish or synthetics; they go right on smoking just the same. Little regard is given to the danger of igniting these materials, until it is too late.

Take the fellow who won't wait to get a "drag" on a cigarette. He goes behind the booth for same; then he flicks the butt on the floor and steps on it—or does he? Then there are the older boys who, with pipe going full blast, and traveling from one department to the other, make sure that they come by way of the spray room. How they squawk when they find that the finishing material spoils the taste of their tobacco. It is easy to see that they are more concerned about this than they are of their own safety or the safety of their fellow workers.

What do you suppose would be the comments of these individuals if the plant went up in smoke—and put out of service, for a short or long duration, several workers, with perhaps some injured for life and out of work entirely? I am sure that they would not like to know that it was their pipe, cigar

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

Approved Service Colors for Marking Overseas Shipments

RONAN

"MARK-IT"

TYPE A (Lacquer Type). These colors are waterproof and sunproof. They may be used with a marking brush or sprayed through stencils. Immediate drying. Work equally well on paper, cartons, wood cases, fabric or other packaging materials. Available in U. S. Army Specification colors for Ordnance, Air Force, Engineers, Chemical Warfare, Quartermasters, Signal, Medical and Transportation. Also Black-out Tan, Clear and Olive Drab.

TYPE B. Fast-drying paste colors for roller coating and striping. Dry flat in 2 minutes.

TYPE C. For silk screen application.

Write for details, prices and color card.

RONAN

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749 E. 135th St., New York City

Paints — Varnishes — Lacquers

or cigarette that was the contributing factor.

I quote an article from a recent paper clipping entitled, "Tyro finds out; Match to Paint Burns up Street."

"A sea of flame covered the street today, destroying an automobile in its path, and provided a burning answer to an incendiary-minded but unkown experimenter. The police are eager to catch up with the elusive 'scientist'. The unknown person poured a can of inflammable lacquer onto the street which, in this block, was a steep down grade. Then a match was applied, apparently to see if the lacquer would burn. It did. Flames spread rapidly for some 200-ft., and destroyed a car; also the rear tires of a truck parked nearby. Other cars and trucks were driven to safety in time. In the ten minutes that the fire burned, the entire neighborhood was filled with a dense smoke."

This will give an idea of what could happen in an enclosed finishing room, should a fire caused by some careless person get ahead of them.

So let's be very careful and adopt the slogan, "No Smoking, and No Fire."—Charles W. Neild.

Random Comment on the Industrial Scene

BY LAWRENCE H. SINGER

Paint Materials Scarcer—With approximately 75% of the industry's output now going into war production, the outlook for protective coatings for civilian manufacturing seems increasingly gloomy. Chemical warfare, camouflage, and lend-lease requirements alone now

add up to a respectable percentage of the total. Although zinc,, titanium and lithopone pigments are fairly plentiful at this writing, it is the drying oils and the solvents which now present the major difficulty to producers. Each time a manufacturer switches to a hitherto unused paint solvent, he discovers in a jiffy that a shortage somehow crops up in the new material.

* * *

Homes of the Future—Luminous paints that may supplement, if not supplant, electric lights in the home are forecast by Matt Denning, of the Du Pont Co. He also anticipates wood that termites cannot devour and fire cannot kindle; and furniture made without wood, metal or leather.

And L. Morgan Yost, prominent midwestern architect, predicts that metallic paints will reflect the heat back into the rooms, so that occupants will be comfortable in temperatures as low as 55° F. Mr. Yost adds that refrigerators will contain quick-freezing units, and will be placed where you can look into them without stooping. He expects to see cooking by radio frequency electricity, which will seal in all juices and flavor, and will cook the center of a roast as well as the outside!

* * *

Sprayed-on Stockings — Spraygun manufacturers do not mention this in their ads, but a new use has been found for their spray guns at many big war plants—applying liquid makeup to the legs of female workers during the noontime recess!

* * *

New Industrial Adhesive—Goodyear has announced a development, in collaboration with Chrysler, of a revolutionary type

★ ★ ★ ★

Specifications + PLUS!

Adaptation of formulae to the individual requirements of busy war contractors.

★ ★ ★

Within specification limits there are many possibilities of improvement in speed, workability, and freedom from rejects.

This PLUS factor is worth considering. We'd like to tell you more about it.

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Has extremely high resistance to water — Thins with alcohol — Dries fast and hard — Good adhesion — Sands easily.

It is a development of our laboratory and has been thoroughly tested over a long period.

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NEW PERIOD PRODUCTION FINISHES

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FLOCKS

EASILY APPLIED AT LOW COST

SAMPLES AND COLOR CARD ON REQUEST

CLAREMONT WASTE MFG. COMPANY
CLAREMONT, N. H.

The country's largest mfrs. of Cotton, Wool and Rayon Flocks

of plastic glue, called "Cycleweld." It is said to bond metal, wood or plastic sheets together more strongly and economically than either riveting or welding. Some authorities believe it may eventually replace riveting and spot-welding altogether on light metals —particularly aluminum.

Composition of the new plastic is naturally a secret. But we are permitted to report that it is an entirely synthetic jet-black liquid which is sprayed or painted on the surfaces to be joined. Adhesion is effected by heat under pressure for 15 minutes.

* * *

Factory-Made Homes—The big rubber company has many other rabbits up its corporate sleeve to startle the post-war world. One of the important plans concerns the firm's forthcoming venture into mass-produced housing units, so constructed that they may be loaded and transported intact on a truck or railroad flat car. Plywood, with an exterior sheeting of some light metal, will be the basic building material. About 2-in. of insulation will be installed between the plywood and interior wall boards, using a cotton-light synthetic resin. The homes, completely furnished, may be sold for less than $2,000.

* * *

The Electronic Age—W. R. G. Baker, vice-president of General Electric and a director of the Radio Manufacturers' Association, has recently forecast far-reaching application of electronic research to post-war living. Frequency modulation, virtually eliminating static and interference, will be the standard means of radio broadcasting for urban stations. Radar equipment will enable ships and planes to proceed safely in any

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Rubber Lacquers!

O'Brien offers complete, up-to-the-minute service in this important field—truly the answer to the rubber man's prayer! The men who formulate these O'Brien lacquers KNOW RUBBER, just as well as lacquer production. They provide the right products. They can show you new ways to use them effectively, economically.

O'Brien is currently supplying many of the largest makers of footwear and rubber parts for War Equipment. If you have a rubber finishing problem (on natural or synthetic), let us hear from you.

DATA SHEETS on this and other industrial finishes are yours for the asking. Write. And ask us to quote on your requirements.

O'BRIEN VARNISH CO.
South Bend, Ind.

BEAUTIFUL
Velvet
AND
Suede
EFFECTS
WITH
Cellusuede
FLOCK

Easily applied to cloth, paper, metal or wood with a spray gun or by sifting. Rayon and Cotton Flocks supplied in one pound bags, twelve to a case, solid or assorted colors. Also supplied in 10 and 50 pound bags. Wide variety of standard colors. Special colors, if desired, in lots of 100 pounds or over. Many distinctive color effects produced by varying shade of adhesive and flock. Write for Color Card, samples, detailed information.

CP
Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

weather. And applied electronics in medicine, permitting enlargements 50 times those obtainable with present microscopes, will help in tracking down many unconquered diseases.

* * *

From the Mail—"We are more than gratified that you should find a thought or two of ours worthy of repetition in Industrial Finishing," writes Dr. Monte Wladaver, research chief of the Pluswood Co., at Oshkosh, Wis. And the distinguished public relations counsel, Ivy Lee and T. J. Ross, forward a note saying they read our item about Socony-Vacuum in the June issue with great interest.

* * *

"A Business Man's Prayer"—We found this message by the Ziebarth Construction Co., of Long Beach, Calif., in a recent issue of **Business Week** moving and inspiring: "America's war production has shown what this country can do when production men are turned loose without being hampered or limited by sales. Should not our future thinking be along these lines?

"As Stuart Chase has put it, if we can produce 125,000 bombers in war, surely we can produce 1,500,000 needed homes in peace. . . . It is our prayer that we may be able to continue America's expanding construction and increased agriculture to the end that more of the good things of life be distributed to all the people. Keep at capacity, America — always!"

* * *

Wings of the Future—How fast will tomorrow's planes fly? Consolidated Vultee reports that a new wind tunnel has been completed which enables aircraft man-

Our Airborne Soldiers

AIRPLANES
GUN STOCKS
BOMB SIGHT BOXES
TOOL CHESTS
MARINE PARTITIONS
RADIO INDUSTRY, ETC.
SKIS
INSTRUMENT BOXES

THE ASSAULT ON SICILY began when our Airborne Soldiers dropped in from the sky. Much of the initial success of this campaign was due to their splendid work behind the lines. Major General J. M. Swing was quoted as saying that they stopped a panzer unit from driving our land forces back into the sea. They played a leading role in the African invasion and in Sicily they added more glory to their already famous corps.

They are picked men specially trained to do a vital combat job. Our production Engineers also are picked men trained to do a vital production job. Success is ours because of these men.

Listed here are a few of the war products now being coated with our materials. Phone, wire or write and let one of our finishing experts help you "keep production rolling."

THERE'S NO TIME TO LOSE—THERE'S JUST TIME TO WIN!

THE LAWRENCE-McFADDEN CO.
Headquarters for Fine Finishes Since 1875
7430 STATE ROAD PHILADELPHIA, PA.

RUDD
LACQUER CORPORATION
SPEEDROY
RUDLACO
NOROY
UNIFORMITY · QUALITY · PERFORMANCE
127 MAIDEN LANE
NEW YORK, N.Y.
FACTORY - RAHWAY, N.J.

Speeds production for coating **WAR PRODUCTS**

500 Large Cartridge Clips Coated Per Minute
1000 1" Buckles Coated Per Minute with R-200

"SPEEDIP" Whirl Enameler and Coating Machine

A combination dipping-whirling machine for completely coating large quantities of small parts with lacquer, enamel, paint, oil, wax, etc. • All operations are within the machine. Parts are dipped into coating material, raised and whirled. Time—as little as 30 seconds. Speeds up production—cuts finishing costs—saves up to 90% of coating materials.

WRITE FOR FURTHER DETAILS OR SEND SAMPLES TO BE COATED.

RONCI MACHINE CO.
45 River Ave., Providence, R. I.

BOOKS

. . . On Finishing Available

"CHEMICAL FORMULARY" (Vol. VI)	$6.00
"WOOD FINISHING" (360 Pages, Cloth)	2.00
"THE MIXING OF COLORS AND PAINTS"	2.00
"FINISHING METAL PRODUCTS"	3.50
"LACQUER AND SYNTHETIC ENAMEL FINISHES"	5.50
"SPRAY PAINTING—Industrial and Commercial"	1.50
"SILK SCREEN METHODS OF REPRODUCTIONS"	3.00
"PRACTICAL FURNITURE FINISHING"	1.25
"FURNITURE FINISHING" (543 Pages)	4.00
"NATIONAL PAINT DICTIONARY"	7.50
"SUBSTITUTES" (Latest Book)	4.00

Cash Must Accompany Orders

INDUSTRIAL FINISHING, 1142 N. Meridian St., Indianapolis 4, Indiana

ufacturers to test planes at speeds approaching that of sound itself—741 miles per hour!

Here is another startling thought offered by the company: A transoceanic Liberator Express takes off from New York City for Russia, just as a fast express train pulls out of the same city bound for Florida. The passengers in the plane will arrive in Moscow before the train pulls into Miami!

* * *

San Francisco Plan—You will be hearing a great deal about the "work-pile" plan developed by the San Francisco Chamber of Commerce, to serve as a shock absorber for the post-war transition period. Approximately 70 committees, representing all branches of commerce, are hard at work tabulating the jobs and business to be created, through spending by those industries, as soon as hostilities cease. To give an idea of the results already accomplished, the committee representing the local banks quickly listed contemplated expenditures for remodeling and equipment of over two million dollars. This eminently sound and practical plan seems worthy of duplication in every community.

* * *

Switches War Orders—A startling example of the constantly-changing requirements of the armed forces came to light when operations were halted early in August at the huge Lake Ontario Ordnance Works. This great plant, covering 7500 acres in upper New York state, only began production in September 1942. To give some idea of the size of the establishment, it contains over 500 buildings, has its own power plant, 33 miles of paved roads, and a water supply system adequate to serve a city of 100,000 population.

SAFEGUARD YOUR SPRAY BOOTHS

Apply Wyandotte Spray Booth Coating *first* for quicker removal later of layers of inflammable paint. It takes only a thin coating to make cleaning easier, speedier, more economical. Write Wyandotte Chemicals Corporation, J. B. Ford Division, Wyandotte, Michigan, for full details!

Wyandotte F-100 will help cut your floor-cleaning costs. Even heavy soil disappears when this remarkable compound gets to work!

CROWN

"25"

This NEW Crown gun gives high efficiency and speed in production work and maintenance and other painting and finishing jobs . . Uses time-tested Crown "20" Spray Head assemblies . . Full Spray Width, Material Adjustment . . Write for literature and prices.

Built to Stand the Gaff

SPRAY GUN

CROWN SPRAY GUN MFG. CO.

1218 Venice Blvd. Los Angeles, Calif.

Warehouses in Principal Cities

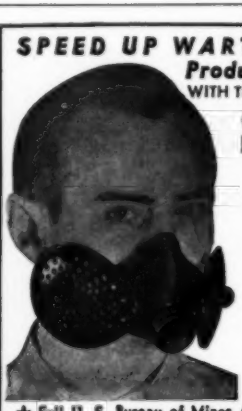
CHEMICALS BY GLYCO

For The
PAINT, VARNISH, AND LACQUER INDUSTRIES

Send for our new catalogue, "Chemicals by Glyco."

Glyco Products Company, Inc.
26 Court St., Brooklyn 2, N. Y.

SPEED UP WARTIME *Production!*
WITH THIS NEW
Cesco No. 94
RESPIRATOR



★ Full U. S. Bureau of Mines Approved (No. BM-2142) against Type A (Silica), Lead and Nuisance Dusts. Equip your workers with this new COMFORTABLE and SAFE Respirator for FASTER DEFENSE PRODUCTION. It's the "Cesco No. 94." Write.

Chicago Eye Shield Co.
2367 Warren Blvd. Chicago, Ill.

Other plants of this type, in various stages of construction, are understood to have been halted in recent months. One may deduce that our ammunition supply is somewhat better than adequate!

* * *

Eye on the Future—Perhaps you have admired the Borg-Warner advertisement which has been appearing in some of the national magazines. It is headed: "This is how a new 1943 Norge would look in your kitchen." The startled housewife is shown face to face with a steel gun turret holding a battery of machine guns, a steel-helmeted soldier peering through the sight. "When the guns are stilled," continues the announcement, "you can be sure that Norge thinking and Norge skill, stimulated by the stern school of war, will bring you even greater satisfaction, greater convenience than you have enjoyed before."

* * *

Taking Their Own Advice — We recently quoted from a Warner & Swasey ad, in which that firm of machine-tool makers called on industry to begin post-war planning now. Mr. E. W. Falcon now calls our attention to the fact that his company is heeding its own sermon, and has organized a Post-war Planning Committee. Although Warner & Swasey are known as specialists in turret lathes, they are now preparing to tackle industrial problems in all branches of light or heavy manufacturing.

* * *

Pointing the Way — Industry's post-war plans can be made "the greatest force for good the world has ever known," said John E. Wiley at the annual convention of the Advertising Federation of America recently. He emphasized

two major problems—selling a vastly increased volume of goods, and combatting the sweep of state socialism by improving the performance of capitalism.

* * *

Deserved Tribute—Two of our leading industrial corporations have merited public accolades by sponsoring outstanding cultural radio programs. General Motors is presenting the famed NBC Symphony Orchestra, under Stokowski and Toscanini, while U. S. Rubber is offering the renowned N. Y. Philharmonic-Symphony.

Incidentally, readers planning to visit New York may obtain free tickets to many leading broadcasts by addressing the writer of this column at 130 West 86th St., New York, N. Y. At least a week's notice is generally required.

* * *

Aluminum is not the only metal which, when finely divided, is an important pigment. Zinc, copper, brass, and many other metals are also useful as pigments.

* * *

Whistler, the great artist, once remarked that good color is not a matter of taste. It is a matter of knowledge.

OLIVE DRAB LACQUER FOR SALE CHEAP

High grade Nitro Cellulose Lacquer made from the finest gum, cotton, solvents and color pigments. Suitable for spray use on wood or metal. Liberal quantities available in Olive Drab and other dark colors. Price greatly reduced. Write for full details.

STEELCOTE MANUFACTURING CO.
ST. LOUIS, MO.

Classified Advertising

Rate: 45 cents per line per insertion — minimum $1.35

FINISHING FOREMAN.

Available immediately. Draft exempt. Several years' experience in large furniture plant. Will consider any location, but prefer midwest. Address IF-944, care Industrial Finishing.

SALES REPRESENTATIVE

Wanted for the Pittsburgh District. One who has been successful in selling the Industrial trade paints, varnishes, synthetics and lacquer products. Capable of selling and servicing industrial finishes. In making reply, give complete history of experience and selling ability. Reply to SALES MANAGER, Ferbert-Schorndorfer Company, Cleveland, Ohio.

SALESMAN WANTED

For eastern territory, by responsible manufacturer of lacquers and enamels, located in New Jersey. Excellent opportunity offered with progressive concern. Address IF-946, care Industrial Finishing.

WANTED.

To purchase a quantity of Air Dry Red Enamel. Address IF-945, care Industrial Finishing.

WANTED.

A 500-750 gals. grinding capacity Steel Pebble Mill for paint, with steel balls; with or without motor. Address IF-943, care Industrial Finishing.

FINISHING FOREMAN WANTED.

Manufacturers of cabinets and metal products located in Lansing, Michigan, want an expert spray finisher to take charge of finishing room. It's a good opportunity for the right man. When you write give references, past experience and salary desired. Address IF-947, care Industrial Finishing.

EXPERIENCED INDUSTRIAL SALESMAN WANTED

To cover Eastern Pennsylvania and Southern New Jersey for well-known Eastern manufacturer of complete line of industrial finishes. Prefer a man who knows this territory. Excellent proposition available for man who qualifies. Please give complete details regarding experience and background. Your letter will be treated with confidence. Address IF-948, care Industrial Finishing.

Index to Advertisers

Advance Paint Co. ..... Third Cover
American Chemical Paint Co. 41
Arco Company, The 81

Behlen & Bro., H. 85
Berry Brothers 79
Binks Mfg. Co. 20-21
Black Bros. Co., Inc. 13
Burdett Mfg. Co. 5

Cellusuede Products, Inc. 94
Chicago Eye Shield Co. 98
Claremont Waste Mfg. Co. 92
Classified Advertising 99
Colonial Process Supply Corp. 8
Crown Spray Gun Mfg. Co. 97

Day & Co., James B. 12
Despatch Oven Co. 65
Detroit Surfacing Machine Co. ..... Front Cover

DeVilbiss Co., The 66-67
Dolan & Co., V. J. 5
DuPont deNemours & Co., E. I. 56-57
Duralac Chemical Corp. 4

Egyptian Lacquer Mfg. Co. 64
Enthone Company, The 1

Glidden Company, The 37
Glyco Products Co., Inc. 98
Grand Rapids Varnish Corp. 73

Hammond Chemical Service 100
Hilo Varnish Corp. 43

Industrial Chemical Development Corp. 6

Johnson & Sons, Inc., S. C. 29

Kirk & Blum Mfg. Co. ..... Back Cover
Koch Sons, Inc., George 47

Lacquer & Chemical Corp. 75
Lawrence-McFadden Co. 95
Lilly Varnish Co. 14-15

Maas & Waldstein Co. 55
Mahon Co., The R. C. 49
Mearl Corp., The 61
Murphy Varnish Co. 35

New Wrinkle, Inc. 53
New York Woodfinishers Supply Co. 92

Oakite Products, Inc. 31
O'Brien Varnish Co. 93

Paasche Airbrush Co. 77
Pittsburgh Plate Glass Co. 10

Qualatone Products, Inc. 85

Randolph Finishing Products Co. 63
Reliance Varnish Co. 24-25
Rockford Varnish Co. 58
Ronan Co., Inc., T. J. 90
Ronci Machine Co. 96
Roxalin Flexible Finishes, Inc. ..... Second Cover
Rudd Lacquer Corp. 96

Schrell & Brock Div. 85
Sherwin-Williams Co. 50-51
Solvents Recovery Service 100
Standard Varnish Works 11
Steelcote Mfg. Co. 99
Stille-Young Corp., The 9
Swift & Co. 7

United Lacquer Mfg. Corp. 6

Varnish Products Co. 91

Wabash Appliance Corp. 83
Walker Co., H. V. 39
Walls Sales Corp. 100
Watson-Standard Co. 45
Wipe-On Corp. 71
Wyandotte Chemicals Corp. 97

Zapon Division—Atlas Powder Co. 2

SOLVENTS RECOVERED BY

THE LOFGREN PROCESS

We RECOVER YOUR

SOLVENTS & THINNERS

from . Sludge . Waste . Wash . Spoiled Lacquers, etc.

Each customer's shipment, whether one drum or a carload receives PROPER and SEPARATE TREATMENT. Write to:—

SOLVENTS RECOVERY SERVICE
1019 Broad Street, Newark, N. J.
or
HAMMOND CHEMICAL SERVICE,
241 Brunswick St., Hammond, Ind.

STANDARD D-4 Abrasive Band Grinder

This new bench type grinder assures fast, quality finishing on metals, plastics, wood, fibre . . at low cost. Equipped with improved band tension control and specially designed protective motor hood. 4x36¼" band. Ideal portable unit.

Other styles and sizes in New Booklet on Finishing—Write Today

WALLS SALES CORP.
95 WARREN STREET NEW YORK, N. Y.

Saluting our Allies of UNITED NATIONS

★ One of a series to be published in the interest of the War effort. Back up our Allies! Back up our own heroes! Buy more bonds!

++GREECE++

ON OCTOBER 20, 1940, Italy sent an ultimatum to Greece demanding complete capitulation and when it was rejected, the Italians marched from Albania into Greece. Within six months the Italians had been driven out of Greece and Greek forces occupied large sections of Albania. At this point, Hitler's hordes entered the struggle and after violent fighting the Greeks were forced to capitulate. Now that the Allies are knocking at the door of the toe and heel of Italy's boot, Greece may once again have another opportunity to play an important role in this war—the beginning of the March to Berlin. Who knows?

★★★★★★★

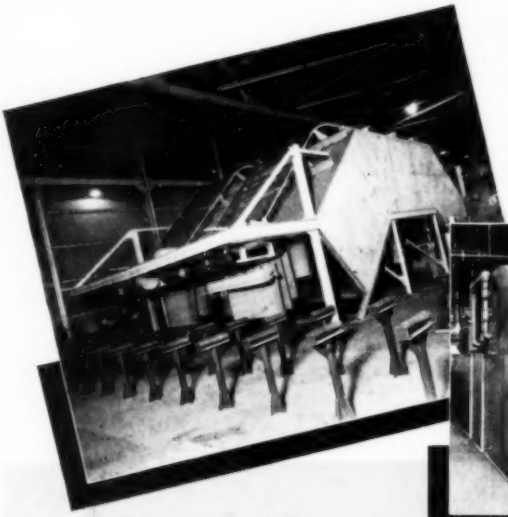
We here at Advance are 100% behind the call for unconditional surrender of our enemies—and we're doing all in our power to help bring it about. We're fighting, we're making war finishes—and buying bonds.

★

ADVANCE PAINT COMPANY

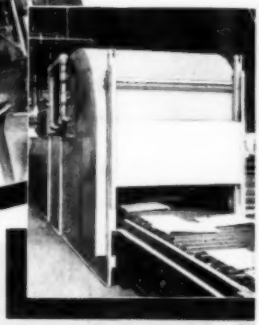
Manufacturers of Wood & Metal Finishing Materials

INDIANAPOLIS, INDIANA



Left Photo: One of the largest "A" Type Conveyor Ovens ever built. Installed in large southern Steel Mill.

Lower Photo: Drying oven installed at Estate Stove Co., reduced costs and improved quality of product.



KIRK & BLUM INDUSTRIAL OVENS

SPEED WARTIME PRODUCTION

In plants throughout the nation, Kirk & Blum drying and baking ovens are turning out faster and better product finishing, stepping up rate of production, reducing fuel and labor costs—and, very important, conserving manpower by promoting maximum safety.

Whatever your finishing problem may be . . . no matter how large or small your product . . . experienced Kirk & Blum Engineers are prepared to design a complete, properly coordinated drying or baking system that will do a BETTER finishing job—at LOWER COST.

SEND FOR ANY ONE OF THESE BOOKLETS:

- **"Industrial Ovens"**
- **"Dust Collecting Systems in Metal Industries"**
- **"Blower Systems for Woodworking Plants"**
- **"Fan Systems for Various Industries"**
- **"Cooling Systems for the Glass Industry"**
- **"Data on Kirk & Blum Production Facilities"**

THE KIRK & BLUM MANUFACTURING CO.

AN ORGANIZATION OF ENGINEERS AND MECHANICS

2831 SPRING GROVE AVE. CINCINNATI, OHIO